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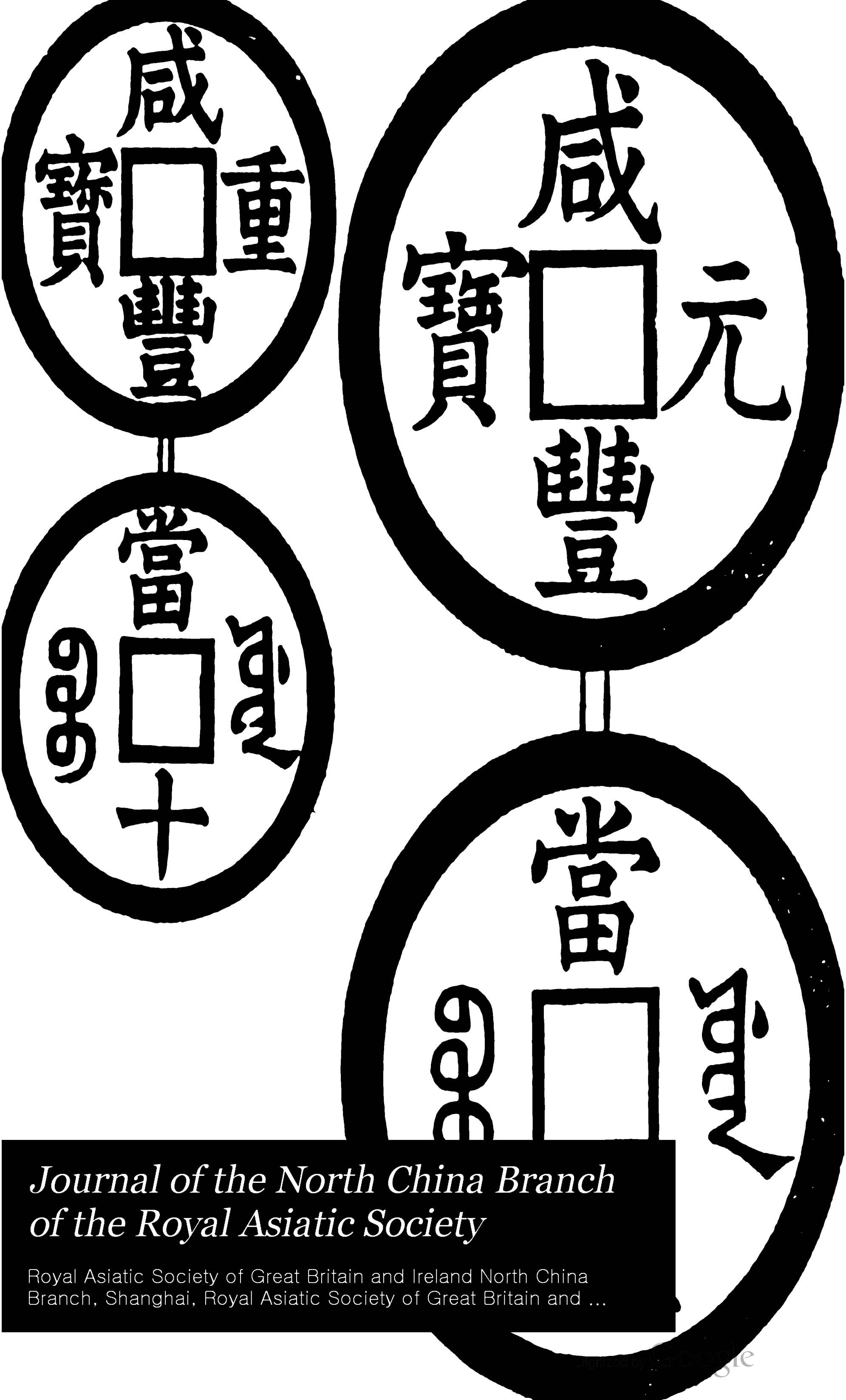
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Journal of the North China Branch of the Royal Asiatic Society

Royal Asiatic Society of Great Britain and Ireland North China Branch, Shanghai, Royal Asiatic Society of Great Britain and ...

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ROYAL ASIATIC SOCIETY

NORTH CHINA BRANCH

JOURNAL

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NEW SERIES

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1880

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OF THE

NORTH-CHINA BRANCH

OF THE

ROYAL ASIATIC SOCIETY.

1880.

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REPORT

OF THE

COUNCIL OF THE NORTH-CHINA BRANCH

OF THE

Royal Asiatic Society,

FOR THE YEAR 1880.

At the Annual Meeting, held on the 8th of March, 1880, the following gentlemen were elected Office Bearers for the year:—

Very Rev. Dean Butcher, D.D., *President.*
A. J. Little, Esq.,
A. E. Hippisley, Esq., } *Vice-Presidents.*
Chas. D. Whitty, Esq., *Secretary.*
Max Slevogt, Esq., *Treasurer.*
Joseph Haas, Esq., *Librarian.*
D. C. Jansen, Esq., *Curator.*
John Fryer, Esq.,
T. W. Kingsmill, Esq.,
D. J. Macgowan, Esq., M.D.,
J. Rhein, Esq.,
C. Schmidt, Esq.,
A. B. Stripling, Esq., } *Councilors.*

Early in the year, the Very Rev. Dean Butcher, President, left Shanghai, and the Council have since been indebted to Mr. A. E. Hippisley, Vice-President, who presided in his place. Five meetings have been held during the year, and the following papers have been read:—

1.—27th January, "On Siamese Coinage,"—by Joseph Haas, Esq.*

2.—8th March, "Remarks on the Middle Yangtsze,"—by D. J. Macgowan, Esq., M.D.

3.—7th June, "Coins of the present Dynasty of China,"—by S. W. Bushell, Esq., M.D., Physician to H. B. M. Legation, Peking.

4.—21st September, "On the Naturalistic Philosophy of China,"—by Frederic H. Balfour, Esq., Professor of English at the Imperial Japanese Legation, Peking.

5.—" On the Geology of Takow, Formosa,"

6.—" On the Geology of the Pescadores,"

7.—" On the Hydrology of the Yangtsze, the Yellow River, and the Peiho,"—by H. B. Guppy, Esq., M.B., Surgeon to H. M. S. *Hornet.*

8.—19th November, "Early European Researches into the Flora of China,"—by E. Bretschneider, Esq., M.D., Imperial Russian Legation, Peking.

Baron Ferdinand von Richthofen and Colonel N. Prejevalsky have been elected Honorary Members of the Society, in recognition of the eminent services rendered by them to the geography of Central Asia and China. Count Bela Széchényi, the head of the Austro-Hungarian Expedition to Western China, and Mr. Herbert A. Giles, of H.B.M. Consular Service, have been nominated Corresponding Members.

The death of the Rev. S. R. Brown, D.D., formerly a resident of Yokohama, has deprived the Society of an old and distinguished Corresponding Member, and the Council also regret to record the death of three ordinary members, one of whom, Mr. G. G. Lowder, for some time acted as Hon. Secretary to the Society. Five members have resigned during the year, and eleven new members have been elected; the following shows the numerical strength of the Society at the end of the year:—Honorary Members, 16; Corresponding do., 23; Resident do., 38; Non-Resident do., 73. Totol, 150.

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* Published in the Society's Journal, Vol. XIV. 1879.

These figures go far to prove that the object of the Society and the benefits it offers to all cultured and thoughtful men are not sufficiently recognised by our resident community. It is true that during the year under review the meetings of the Society have been far better attended then during preceding years, but to be really prosperous we need the support of a wider circle of friends than are now found on the list of resident members.

Under the superintendence of Mr. Haas, the Honorary Librarian, the collection of books forming the Society's Library has been transferred to the present Lecture-hall, the circulation of the books being now under the control of the Committee of the Shanghai Library, and it speaks well for the new arrangement that the collection is now more generally used than has been the case formerly.

A new catalogue of the Library has been issued, and the Society's Journal for 1880 is in course of publication, under the editorship of Messrs. Hippisley and Haas.

The usual reports of the Librarian, Treasurer, and Curator of the Museum are appended.

31st December, 1880.

* * *

LIST OF MEMBERS.

(JULY 1881.)

HONORARY.

His Majesty LEOPOLD II., King of the Belgians.

Alcock, Sir Rutherford, K.C.B., London.
Hart, Robert, Esq., C.M.G., Peking.
Legge, Rev. J., D.D., L.L.D., Oxford.
Medhurst, Sir Walter H., K.C.B., London.
Parkes, Sir Harry S., K.C.B., Tokio.
Pereira, Marquis, A. F., Esq., Bombay.
Prejevalsky, Col. N., St. Petersburg.
Richthofen, Baron Ferdinand von, Bonn.
Seward, George F., Esq., U.S.
Shadwell, Admiral Sir Charles F.A., K.C.B., Melksham, Wilts.
Wade, Sir Thomas F., K.C.B., Peking.
Williams, Rev. S. Wells, L.L.D., Yale, U.S.
Wylie, Alex, Esq., London.
Yule, Col. H., C.B., London.

CORRESPONDING.

Bastian, Prof. Dr. A., Berlin.
Cox, Rev. Josiah,——.
Delaplace, Mgr. L. G., Peking.
Edkins, Rev. J., D.D., Peking.
Fritsche, H., Esq., Ph. D., Peking.
Fryer, John, Esq.
Giles, Herbert A., Esq.
Gordon, Col. C. G., England.

Hance, H. F., Esq., Ph. D., Whampoa.
Happer, Rev. A. P., D.D., Canton.
Hepburn, J. C., Esq., M.D., Yokohama.
John, Rev. Griffith, Hankow.
Keischke, Dr. Ito, Tokio.
Kreitner, Lieut. G., Vienna.
Lindau, Rudolph, Esq., Berlin.
Lockhart W., Esq., M.D., London.
Macgowan, D. J., Esq., M.D., Wenchow.
Martin, Rev. W. A. P., D.D., L.L.D., Peking.
McCartee, D. B., Esq., M.D., Tokio.
McClatchie, Rev. Thos., M.A., Shanghai.
Moule, Right Rev. G. E., D.D., Hangchow.
Muirhead, Rev. W., Shanghai.
Schereschewsky, Right Rev. S. I. J., D.D.
Széchényi, Count Bela, Zinkendorf, Hungary.
Williamson, Rev. A., L.L.D., Chefoo.

RESIDENT.

Acheson, James, Esq.
Carles, W. R., Esq.
Cooverjee, P., Esq.
Dülberg, F. W. E., Esq.
Forbes, F. B., Esq.
Grant, P. V., Esq.
Gubbay, R. A., Esq.
Haas, J., Esq.
Hague, E. P., Esq.
Henderson, Ed., Esq., M.D.
Hjousbery, E., Esq.
Holt, Rev. W. S.
Hosie, Alex., Esq., M.A.
How, A. J., Esq.
Jansen, D. C., Esq.
Kingsmill, T. W., Esq.
Kleinwächter, G. H. J., Esq.
Krause, A., Esq.
Little, A. J., Esq.
Little, L. S. Esq., M.D.
Low, E. G., Esq.
Maignan, H., Esq.
Morris, Herbert S., Esq.
Morrison, G. J., Esq.
Pichon, L., Esq., M. D.
Reeks, A. J., Esq.
Rivington, Charles, Esq.
Samson, J., Esq.
Saunders, W., Esq.
Schmidt, C., Esq.
Shinagawa, E., Esq.
Slevogt, M., Esq.
Southey, T. S., Esq.
Starkey, Reg. D., Esq.
Stripling, A. B., Esq.
Toda, E., Esq.
Vissière, A., Esq.
Wetmore, W. S., Esq.
Wood, A. G., Esq.
Youd, F., Esq.

NON-RESIDENT.

—:o:—

Alford, R. G., Esq., Hongkong.
Allen, E. L. B., Esq., Foochow.
Allen, H. J., Esq., England.
Anderson, G. C., Esq.,——.
Ayrton, W. S., Esq., Newchwang.

Baber, E. C., Esq., Peking.
Bandinel, J. J. F., Esq., Newchwang.
Boleslawski, Chevalier C. de, Cairo.
Brenan, B., Esq.,——.
Bretschneider, E., Esq., M.D., Peking.
Bristow, H. B., Esq., Tientsin.
Brown, J. McLeavy, Esq., England.
Bushell, S. W., Esq., M.D., England.
Butcher, Very Rev. C. H., D.D., England.

Coignet, F. Esq., France.
Cooper, W. M., Esq., England.
Cordes, August C., Esq., Hamburg.
Coughtrie, J. B., Esq., England.

Davenport, A., Esq., England.
Deighton-Braysher, C., Esq., England.
Dennys, H. L., Esq., England.
Dodd, J., Esq., Tamsui.

Eitel, Rev. E. J., PH. D., Hongkong.

Farago, E., Esq., Peking.
Fauvel, A. A., Esq., Cherbourg.
Ferguson, His Ex., J. H., Peking.
Fergusson, T. T., Esq., Chefoo.
Fisher, H. J., Esq., Keelung.
Frater, Alex., Esq., England.

Gardner, C. T., Esq., England.
Giquel, P., Esq., Paris.
Glover, G. B., Esq., Kiukiang.
Guppy, H. B., Esq., M.B., Falmouth.

Hanbury, T., Esq., England.
Henderson, J., Esq., Tientsin.
Hippisley A. E., Esq., Tamsui.

Hirth, F., Esq., PH. D., Germany.
Hobson, H. E., Esq., England.
Hübbe, P. G., Esq., Hamburg.
Imbault-Huart C., Esq., Peking.
Jamieson, G., Esq., Kiukiang.
Johnson, F. B., Esq., Hongkong.
Johnston, J., Esq., M.D.
Kleinwächter, F., Esq., Ningpo.
Kopsch, H., Esq., Pakhoi.
Krey, W., Esq., Germany.
Macintyre, Rev. John, Newchwang.
Maclay, R. H., Esq., Tientsin.
McClatchie, H. P., Esq., Chefoo.
Möllendorff, O. von, Esq., PH. D., Canton.
Möllendorff, P. G. von, Esq., Tientsin.
Owen, Rev. G. S., Peking.
Paasch, C., Esq., Peking.
Parker, E. H., Esq., Chungking.
Pitman, J., Esq., Tokio.
Plancy, V. Collin de, Esq., Peking.
Reid, David, Esq., England.
Rhein, J., Esq., Peking.
Rocher, E., Esq., France.
Ruegg, E., Esq., Switzerland.
Russell, The Hon. James, Hongkong.
Ryrie, The Hon. Phineas, Hongkong.
Sampson, T., Esq., Canton.
Schultz, Capt. C. A., Tientsin.
Schulze, F. W., Esq.
Seckendorff, Baron von, Peking.
Sim, Alexander, Esq., England.
Smith, The Hon. Cecil C., Singapore.
Stent, G. C., Esq., Swatow.
Streich, K. A., Esq., Peking.
Stuhlmann, C. C., Esq., Foochow.
Sutherland, H., Esq., Foochow.
Tata, D. B., Esq.
Watters, T., Esq., Tamsui.
White, F. W., Esq., Hankow.
Wicking, H., Esq., Hongkong.
Wilcox, R. C., Esq., Hongkong.

TREASURER'S REPORT.

—:o:—

To the President and Council of

THE NORTH-CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY,
SHANGHAI.

GENTLEMEN,

IN submitting to you the Accounts of the North-China Branch of the Royal Asiatic Society for the year 1880, I have much pleasure in being able to report favorably on the financial position of the Society. From the enclosed Balance Sheet it will be seen that the total income of the Society during 1880 amounted to Mex. $. 864.13, the current expenses to Mex. $. 455.32, leaving a Credit Balance of Mex. $. 408.81 in the hands of your Treasurer. During the year 98 Subscriptions, producing Mex. $. 710, have been collected, as against Mex. $. 645 received in 1879. 28 Subscriptions are still due from Non-Resident Members, but I do not anticipate that these arrears will bring in more than about Mex. $. 80. An amount of Mex. $. 136.90 has likewise been received for copies of Journals sold by Messrs. Trübner & Co., London, and it is hoped that the arrangement recently concluded with our local Agents will help to increase the Society's income from this source.

The reduced cost of the Journal for 1879 is the principal cause of last year's disbursements contrasting favorably with the expenditure of former years; on the other hand our expenses for Fire-Insurance, repairs to the building, advertisements and book-binding have been somewhat heavier than usual. The Society have no outstanding liabilities at present but early in the year about Mex. $. 90 will become due for printing the new Catalogue of the Library and the cost of the Journal for 1880 will form a very conspicuous item in the expenditure of the current year.

As regards the Museum, its existence is dependent upon the liberal contributions received from the English and French Municipal Councils, and it is to be hoped that our two Municipalities will continue to assist an Institution so deserving of support and which is a source of pleasure and instruction to a large part or our community. During the year the receipts of the Museum amounted to Mex. $. 851.37, the expenditure to Mex. $. 709.24, of which Mex. $. 102.46 properly belong to the previous year, being amount of rent due to the Shanghai Library for the 6 Months ending 31st December, 1879. A Credit Balance is thus shown amounting to Mex. $. 142.13= Tls. 103.09, which are duly lodged with the Hongkong and Shanghai Banking Corporation. In the matter of outstanding liabilities the Museum is less fortunately situated than the parent Institution, its indebtedness on 31st December, 1880 being as follows:—

To Recreation Fund: Interest on Loan of Tls. 1500, three years at 5 per cent per annum, ...	Tls. 225.
To W. B. Pryer, Esq., Sundry Expenses for Museum, due since 1875, $.51.39, ...	Tls. 37.37
	Tls. 262.37

MAX SLEVOGT,
Hon. Treasurer.

SHANGHAI, 1*st February*, 1881.

BALANCE SHEET
OF THE
NORTH-CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY,
FOR THE YEAR 1880.

RECEIPTS.	$.	cts.	$.	cts.	DISBURSEMENTS.	$.	cts.	$.	cts.
To 14 Subscriptions collected for 1879.	70				By Amount paid to Hon. Treasurer for 1879			17	27
„ 84 do. do. 1880.	640				„ Printing Journal for 1879.	139	30		
„ Sale of Journals:			710		„ Wood-cuts for do. do.	31	50		
Trübner & Co., London: £25.8/4.	136	90						170	80
Lane, Crawford & Co.:	1	70			„ Fire-Insurance:				
					Tls. 3000. on Building = Tls. 24.	32	75		
			138	60	„ 2500. „ Contents do.=„ 20.	27	03		
„ Museum Fund: Balance of Loan Tls. 150.=$.205.20			15	53	„ 1600. „ Journals =„ 12.80	17	49		
					Tls.56.80			77	27
					„ Stationery, Book-binding & Printing			60	45
					„ Advertisements.			46	45
					„ Repairs to Building. Tls.25.			33	96
					„ Municipal and Chinese Government Taxes			15	25
					„ Postages and Freight on Journals			14	75
					„ Gas and Coal			3	88
					„ Wages to Shroff, Coolyhire and sundry Expenses			15	74
					„ Balance in hand			408	81
Total...	....	$.	864	13	Total...	....	$.	864	13

E. & O. E.

SHANGHAI, 31st *December*, 1880.

MAX SLEVOGT,
Hon. Treasurer.

Audited and found correct,
JOS. HAAS
G. KLEINWACHTER.

BALANCE SHEET
OF THE
MUSEUM FUND OF THE NORTH-CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY,
FOR THE YEAR 1880.

RECEIPTS.	$.	cts.	$.	cts.
To Grant of English Municipal Council, ... Tls. 500.	681	90		
„ Grant of French Municipal Council, ... Tls. 100.	137	50		
			819	40
„ Sale of Duplicates from Museum			27	90
„ Interest on Current Account with H. & S. Bank, ... Tls. 3.			4	07
Total...	....	$.	851	37

DISBURSEMETNS.	$.	cts.	$.	cts.
By Rent of Museum for 6 Months ending 31st Decbr., 1879, Tls. 75.	102	46		
„ Rent of Museum for 12 Months ending 31st Decbr., 1880, Tls. 150.	204	99		
			307	45
„ Wages to Chinese Taxidermist, 12 Months at $.20 p.m.			240	
„ do. to Coolie, 12 Months at $.5 p.m.			60	
„ Repairs to Building Tls. 25.			33	97
„ Fire-Insurance on Contents of Museum: Tls. 1000.=Tls. 8.			10	81
„ Municipal Taxes			4	53
„ N.-C. B. of the R. A. Society: Balance of Loan Tls. 150.= $.205.20.			15	53
„ Incidental Expenses			36	95
„ Balance deposited with Hongkong and Shanghai Banking Corporation, Tls. 103.09.			142	13
Total...	....	$.	851	37

E. & O. E.

SHANGHAI, 31*st December*, 1880.

MAX SLEVOGT,
Hon. Treasurer.

Audited and found correct.
JOS. HAAS
G. KLEINWACHTER.

LIBRARIAN'S REPORT.

—:o:—

THE most important event of the year, as regards the Library, has been the transfer of its collection of books to the custody of the Committee of the Shanghai Library, the latter Institution undertaking to superintend the circulation of the books in consideration of the members of the Shanghai Library being allowed the free use of the Society's Library. Although this arrangement may at first sight appear to be one-sided, it is really in favour of the Society, as from want of a Librarian residing on the premises, the collection of books has been practically inaccessible in the past. If in future the number of readers should not increase, it will be due to lack of interest rather than owing to defects in the management of the Library.

To facilitate the supervision of the books, the collection has been removed to the Lecture-hall on the ground-floor of the Society's building and the Library itself has been put into better order.

In accordance with the terms of the agreement entered into with the Shanghai Library a hand-list of works contained in the Society's collection has been prepared, corrected up to 31st December 1880, and the same shows 991 Nos. to which must be added the 1023 Chinese volumes of the Wylie Library and the collections of works on Natural History which remain under the charge of the Museum authorities.

As will be seen from the annexed list of additions received at the Library during the past year, the Society has again not been able to acquire any works by purchase, which is to be regretted, as the collection, although rich in early works on China and the Far East, shows some important *lacunae* as regards publications of a more modern date. The names of Ritter, Lassen,, Yule, Koeppen, Beal, Palladius and Prejevalsky will be looked for in vain on the pages of our Catalogue, not to mention numerous other works which are indispensible to every scientific Library in the East.

On the other hand the accessions to the Library, received in the way of exchanges or as donations from Governments, Publishers and private individuals, have been neither few nor unimportant, as a glance at the appended list will show.

Foremost in rank, both as regards the donor and the value of the donation, stands the magnificent work on Boro-Boudour, presented to the Society by H. E. the Netherlands' Minister for the Colonies, the full title of which is a follows:—

Buddhist Architectural Remains in Java:

"BORO-BOUDOUR," dans l'Ile de Java, dessiné par F. C. Wilsen, avec texte explicatif et descriptif, rédigé d'après les mémoires M. S. S. et imprimés de F. C. Wilsen, J. F. G. Brumund et autres documents, publiés par C. Leemans.—

2 vols. 8vo of text (French and Dutch), with 17 plates and 8 royal folio volumes of 393 large plates, containing about 1000 separate designs.—Leide, 1874.

Bernard Quaritch says in relation to this work (Book List No. 47):

"This grand work, published by order of the Dutch Colonial "Office, illustrates the ruins of an ancient temple first discovered in 1814, which forms a splendid monument of "Buddhist architecture in Java in the eighth or ninth century "of our era. It attests the magnificent civilisation of the "ancient Indo-Javanese dynasties that ruled the island before "the arrival of Mahommedan conquerors, and adds an important contribution to the history of Buddhism and its "developments in Art. The sculptures are treated in detail "in the text, so that the latter has grown into an extensive "work on the historical and traditional life of Buddha, the "ancient history of India, and the history of Java during the "sixth to the fourteenth century."

The number of Scientific Institutions with whom the Society exchanges publications has been further extented during the year, and the list now comprises some 30 Societies in Europe, America and Asia.

To Dr. E. Behm, the Editor of Dr. A. Petermann's Geographische Mittheilungen, Guido Cora, the well-known Italian Geographer, Dr. Sourindro Mohun Tagore of Calcutta, who presented the Society with 26 of his works on Hindu Poetry and Music, to the Inspector General of the Imp. Chinese Maritime Customs, to the Rev. Father M. Dechevrens, S. J., the learned Director of the Zi-Ka-Wei observatory, and to several other valued authors, whose names will be found in the annexed list, the Library is indebted for many important contributions, and while it is hoped that the interest thus shown in the welfare of the Society will be maintained, I trust that others will come forward and help us to fill up the blanks which at present somewhat detract from the value of the Library.

JOSEPH HAAS,
Hon. Librarian.

SHANGHAI, *January*, 1881.

LIST OF WORKS PRESENTED TO THE LIBRARY OF THE NORTH-CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY DURING THE YEAR ENDING 31st DECEMBER, 1880.

921. Chinese Buddhism by the Rev. Joseph Edkins. *London, Trübner & Co.*, 1880, 8vo.
from the Author.

925. *Harmonium Sutra*, or a Treatise on Harmonium by Sourindro Mohun Tagore. *Calcutta*, 1874, 8vo.

926. Theory of Sanskrit Music, compiled from the ancient authorities, by Sourindro Mohun Tagore. *Calcutta*, 1875, 8vo.

927. Hindu Music from various authors compiled by Sourindro Mohun Tagore. *Calcutta*, 1874, sm. 8vo.

928. *Yantra Kosha* or a Treasury of the Musical Instruments of ancient and modern India, by Sourindro Mohun Tagore. *Calcutta*, 1875, sm. 8vo.

929. Public Opinion and Official Communications about the Bengal Music School. *Calcutta*, 1876, 8vo.

930. *Six Principal Rágas*, with a brief view of Hindu Music, by Sourindro Mohun Tagore. *Calcutta*, 1877, 4to.

931. Short Notices of Hindu Musical Instruments, by Sourindro Mohun Tagore. *Calcutta*, 1878, 8vo.

932. *Gitávali*, or a Hindi Manual of Indian Vocal Music, by Sourindro Mohun Tagore. *Calcutta*, 1878, 8vo.

933. *Sangita Sára*, or a Treatise on Hindu Music, by Kshetra Mohana Gosvami. *Calcutta*, 1879, 8vo.

from Rajah Sourindro Mohun Tagore.

934. Occasional Papers on Chinese Philosophy, by Chaloner Alabaster.—No. VI. The Chinese Bible, ppto. 8vo.

from the Author.

939. Report of the Commissioner of Agriculture for the year 1877. *Washington*, 1878, 8vo.

from the U. S. Department of Agriculture.

941. Metaphysics or the Science of Perception, by John Miller. *New York, Dodd and Mead*, 8vo.

from the Author.

944. Report of the Superintendent of the United States Survey for the fiscal year ending with June 1876. *Washington*, 1879, 4to. (2 copies).

from the U. S. Department of Coast Survey.

945. United States Geographical Surveys West of 100th Meridian.—Part II. Astronomy and Barometric Hypsometry. *Washington*, 1877, 4to.

from Lieut. Geo. M. Wheeler.

949. Bulletin Mensuel de l'Observatoire Magnétique et Météorologique de Zi-ka-wei. Tome V.—1879, 8vo.

from the Rev. Jesuit Fathers.

951. The Cities and Towns of China, a geographical dictionary, by G. M. H. Playfair, *Hongkong*, 1879, 8vo.

from the Author.

955. Os Lusiadas por Luis de Camões. Edicao Popular gratuita da Empreza do Diario de Noticias, 1880.

from the Publishers.

956. *Victoria-Samrajyan*, or Sanskrit Stanzas in commemoration of the assumption by H. M. G. Maj. the Queen Victoria of the diadem "Indiae Imperatrix", by Sourindro Mohun Tagore. *Calcutta*, 1877, 8vo.

957. *Victoria-Giti-Malá*, or a brief History of England in Bengali Verses, by Sourindro Mohun Tagore. *Calcutta*, 1877, 8vo.

958. A few Lyrics of Owen Meredith, set to Hindu music, by Sourindro Mohun Tagore. *Calcutta*, 1877, 8vo.

959. *Bhugola o Itahasa* Ghatita Brittanta.—Part I, Europe, by Sourindro Mohun Tagore. *Calcutta*, 1877, 16mo.

960. Fifty Tunes composed and set into music by Sourindro Mohun Tagore, 1878, 8vo.

961. A Vedic Hymn, published by Sourindro Mohun Tagore. *Calcutta*, 1878.

962. *Yantra Kshetra Dipiká*, or a Treatise on the "Setar", by Sourindro Mohun Tagore, Sec. Ed. *Calcutta*, 1879, 8vo.

963. A few Specimens of Indian Songs, by Sourindro Mohun Tagore. *Calcutta*, 1879, 8vo.

964. *Kari-Rahasyam*, or a Root-Lexicon within a Poem, by Bhatta Haláyudha. *Calcutta*, 1879, 8vo.

965. The ten principal *Avatáras* of the Hindus, by Sourindro Mohun Tagore. *Calcutta*, 1879, 8vo.

966. *Manasa Pujanan*, a collection of Sanskrit Hymns, by Sankara Charjya. sm. 8vo.

967. *Málabikagnimitra*, a drama in five acts by Kálidása. Sec. Ed. *Calcutta*, 1877, 16mo.

968. *Bháritaya Nátya Rahasya*, or a Treatise on Hindu Drama, by Sourindro Mohun Tagore. *Calcutta*, 1878, 16mo.

969. The eight principal *Rasas* of the Hindus, by Sourindro Mohun Tagore. *Calcutta*, 1879, 4to.

970. *Vení Sanhara Nataka*, or the Binding of the Braid, a Sanskrit drama, by Bhatta-Narayána. *Calcutta*, 1880, 8vo.

971. *Muktabali Natika*, a Bengali Drama, 12mo.

from Rajah Sourindro Mohun Tagore.

972. A Voyage in the "Sunbeam", by Mrs. Brassey. *Leipsig*, *Bernhard Tauchnitz*, 1879, 12mo.

Presented.

974. Reisen naar Nederlandsch Nieuw-Guinea in de Jaren 1871, 1872, 1875–76, door P. J. B. C. Robidé van der Aa. *S'Gravenhage, Martinus Nijhoff*, 1879, 8vo.
from the Author.

975. Reisen in China von Peking zur Mongolischen Grenze und Rückkehr nach Europa, von Dr. Adolf Bastian. *Jena, Costenoble*, 1871, 8vo.
from Joseph Haas Esq.

976. The Missionary Enterprise, its success in other lands, the assurance of its success in China, by a Missionary. *Shanghai*, 1880, ppt. 8vo, 23 pag.
from Presbyterian Mission Press.

978. *Bôrô-Boedoer* up het Eiland Java, door Dr. C. Leemans. *Leiden, E. J. Brill*, 1873, 8vo.

979. *Bôrô-Boudour* dans l'ile de Java, dessiné sous la direction de Mr. F. C. Wilsen avec texte descriptif et explicatif, redigé d'après les mémoires manuscrits et imprimés de M. M. F. C. Wilsen, J. F. G. Brumund et autres documents, et publié d'après les ordres de Son Excellence le Ministre des Colonies, par le Dr. C. Leemans. *Leide, E. J. Brill*, 1874, 8vo.

980. *Bôrô-Boudour* sur l'ile de Java. *Leide, E. J. Brill*, folio, 1e–8e Livraison.
from H. Exc. the Netherlands' Minister of Colonies.

987. La Province Chinoise du Yûn-nan, par Emile Rocher. 2 vols. *Paris, Ernest Leroux*, 1879, 8vo.
from the Statistical Department Imp. Maritime Customs.

988. Chinese Chronology and Cycles by Thomas Fergusson. *Shanghai*, 1880, 12mo.
from the Author.

989. The Province of Shing-king (by Julius Bryner). *Shanghai*, 1880, 4o.
from the Author.

990. A Brief Account of the *Tagore* Family. *Calcutta*, 1868, 8vo.
from the Author.

830. *Trübner's* American and Oriental Literary Record. Nos. 145/6 (Vol. XII, Nos. 9-12); New Series, Vol. I, Nos. 1, 3-8.
from the Publishers.

991. Bibliothèque de feu M. Jules Thonnelier, Orientaliste etc. Partie Orientale et Linguistique. *Paris, Ernest Leroux,* 1880, 8vo.
from F. B. Forbes, Esq.

838. Journal of the *Royal Asiatic Society of Great Britain and Ireland.* New Series: Vol. XI, Part III, August 1879; Vol. XII, Part I, January 1880, Part II, April 1880.
from the Society.

839. Journal of the *Statistical Society of London.* Vol. XLII, 1879, Part III, Sept.; Part IV, Dec.; Vol. XLIII, 1880, Part I, March.
from the Society.

840. Proceedings of the *Royal Geographical Society* and Monthly Record of Geography. Vol. I, 1879, No. 11, Nov.; No. 12, Dec.; Vol. II, 1880, Nos. 1-7, Jan.—July.—Title, Contents and Index for Proceedings 1879.
from the Society.

841. Proceedings of the *Royal Society of Edinburgh.* Session 1878–79, Vol. X. (2 copies).
from the Society.

846. Bulletin de la *Société de Géographie.* Dec. 1879; Janv — Juin 1880.
from the Society.

849. Mémoires de la *Société des Etudes Japonaises, Chinoises, Tartares et Indo-Chinoises.*—Session de 1878–79.
from the Society.

851. Zeitschrift der *Deutschen Morgenländischen Gesellschaft.* XXXIII. Band (1879), III. & IV. Heft.
from the Society.

852. XVI. Jahresbericht des *Vereins für Erdkunde zu Dresden.* Wissenschaftlicher Theil.
from the Society.

868. *Cosmos,* Communicazioni della Geografia di Guido Cora. Vol. V, 1878, Nos. X-XII; Vol. VI, 1880, Nos. I-IV.
from the Editor.

870. Monatsbericht der *Kön. Preuss. Akademie der Wissenschaften zu Berlin.* Sept.—Dec., 1879; Jan.—Juli, 1880.
from the Academy.

871. Sitzungsberichte der *K. B. Akademie der Wissenschaften zu München.*

1. Philosophisch-philologisch and historische Classe: 1878, Band II, Heft I-III; 1879, Band III, Heft I-III.

2. Mathematisch-physikalische Classe: 1878, Heft IV; 1879, Heft I & II.

from the Academy.

872. Tijdschrift voor Indische Taal-, Land-, en Volkenkunde. 1879, Deel XXV, Aflevering 4-6; 1880, Deel XXVI, Afl. 1 & 2. Bijdragen: Derde Deel, 1. & 2. Stuk.

892. *Bataviaasch Genootschap von Kunsten en Wetenschappen:*
2. Notulen, Deel XVII, 1879, Nos. 2-4; Deel XVIII. 1880, No. 1.
3. Verhandelingen, Deel XXIX, 2e Stuk; Deel XLI, 1e Stuk.
Register op de Notulen der Vergaderingen over de Jaren 1867-1878.

from the Society.

873. Oesterreichische Monatsschrift für den Orient: 1880, Februar-August.

from the *Oriental Museum in Vienna.*

874. Mittheilungen der *Kais. u. Kön. Geographischen Gesellschaft in Wien.* 1879, XXII Band.

from the Society.

879. Atti della *R. Accademia dei Lincei in Roma.* Transunti: 1879, Dec.; 1880, Gen.-Giugno.

from the Academy.

880. Journal of the *American Oriental Society.* Tenth Volume, No. II (2 copies).

from the Society.

881. *Smithsonian Institution.* Annual Report of the Board of Regents for the year 1877.

from the Institution.

885. *American Philosophical Society at Philadelphia.* Proceedings: Vol. XIV, Nos. 94 & 95, 1875; Vol. XVI, Nos. 99 & 100, 1877; Vol. XVII, Nos. 101 & 102, 1878. Catalogue of the Library, Part III, 1878.

from the Society.

899. Transactions of the *Asiatic Society of Japan:* Vol. VIII, Pt. I, Febr. 1880, Pt. II, May 1880, Pt. III, Oct. 1880.

from the Society.

917. Reports on Trade at the Treaty Ports in China for the year 1878.—14th Issue.

918. Returns of Trade at the Treaty Ports for the year 1879. Part II, Statistics of the Trade at each Port.

919. Imperial Maritime Customs.—Medical Reports for the half year ended 31st March 1880.—19th Issue.

from the Statistical Department Imp. Maritime Customs.

NOT INCLUDED IN CATALOGUE, 1881.

Boletin del *Ministerio de Fomento de la Republica Mexicana:* Tom. IV, 116-157; Tom. V, 1-6, 18-170.

Revista Cientifica Mexicana: 1880, Tom. I, Num. 1-3.

from the Government of Mexico.

Boletin de *La Societad de Ingenieros de Jalisco:* Sept. 15, 1880, Tom. I, No. 1.

from the Society.

Zweiter Jahresbericht des *Vereins für Erdkunde zu Metz pro* 1879.

from the Society.

Dr. A. Petermann's Mittheilungen aus Justus Perthes' Geographischer Anstalt, herausgegeben von Dr. E. Behm. 26. Band, 1880, I–X; Ergänzungsheft No. 12.

from the Publisher.

Revue critique d'Histoire et de Littérature. No. 19, 10th May 1880.

Thirty first annual Report of the Trustees of the *Astor Library* for the year ending December 31st, 1879.

from the Library.

Journal of the *Society of Arts*. London. Vol. XXVIII, No. 1448.

from the Society.

Customs' Gazette, No. XLVII, July-September 1880.

Returns of Trade at the Treaty Ports in China for 1879 (in Chinese).

List of Chinese Light-houses, Light-vessels, Buoys and Beacons for 1879 (in Chinese).

from the Statistical Department, Imp. Maritime Customs.

Journal of the *Straits Branch of the Royal Asiatic Society*. June 1880.

from the Society.

Museum Library:

The Natural History and Scientific Book Circular, by William Wesley, bookseller and publisher.

from the Publisher.

Bulletin of the *Minnesota Academy of Natural Sciences* for 1877.
from the Academy.

XXVI. und XXVII. Bericht des *Vereins für Naturkunde zu Kassel* über die Vereinsjahre vom 18. April 1878 bis dahin 1880.
from the Society.

Jahresbericht des *Vereins für Naturwissenschaft zu Braunschweig* für das Geschäftsjahr 1879–1880.
from the Society.

Annual Report of the Curator of the *Museum of Comparative Zoology* at Harvard College for 1878–1879.
from the Curator.

Proceedings of the Scientific Meetings of the *Zoological Society of London* for the year 1879. Parts III & IV.

List of the Vertebrated Animals in the Gardens of the *Zoological Society*. 1879, and first supplement.
from the Society.

The Quarterly Journal of the *Geological Society of London*. Vol. XXV, Pt. 4, No 140, Nov. 1879; Vol. XXVI, Pt. 1 & 2, Nos. 141 & 142, Febr-May 1880.

List of the *Geological Society of London*. 1st Nov. 1879.
from the Society.

Jahrbuch der *Kais. Kön. Geologischen Reichsanstalt in Wien.* 1878, XXVIII. Bd., No. 4, Oct.—Dec.; 1879, XXIX. Bd., No. 2, Apr.—Juni.
from the Institution.

Catalogue of Minerals by A. E. Foote, M.D. *Philadelphia.*
from the Author.

Notes on the Geology of the Iron and Copper Districts of Lake Superior by M. E. Wadsworth.
from Harvard College, U.S.A.

* * *

SHANGHAI MUSEUM.

REPORT OF THE CURATOR FOR THE YEAR 1

IT will be gratifying to the members of the Society to l that throughout the year, notwithstanding the absence of scientific predecessor, the public has continued to exhibi usual interest in the Museum. The book kept there sh that more than three hundred persons visited it during year; but this, I must mention, very inadequately repres the total number who have done so, few indeed regar the request of entering their names. The donations, w have been made during that period, more than equal, bot point of number and scientific interest, those of the prece year. A detailed list of them is attached to this report, I venture to suggest, that in the interest of the Society, desirable that this should be published *in extenso*, toge with the contributors' names, in its Annual Report; so an official recognition may be given which will prob be more generally esteemed than the simple announcen hitherto limited to the daily journals.

I think it only right to specially call the attention of Society to the extensive and valuable collection of specin illustrative of the geology of China presented to the Muse during the year, and for which we are indebted to Dr. H Guppy, of H.B.M.'s ship *Hornet*. This forms by far the n complete series which has hitherto been received; and intrinsic value is enhanced by the locality being attached each specimen, and by the nomenclature being given in m cases, upon the authority of the contributor. If a transient visi has been able to make so valuable a collection with such slig opportunities, how great a field is open to resident and corr ponding members of the Society, either personally or throu the medium of their friends at the out-ports, to largely aid acquiring a knowledge of this neglected but most importa branch of the scientific history of this immense empire.

Some highly interesting geological specimens from Corea and Russian Siberia have also been presented by Capt. G. C. Anderson, of the s.s. *Appin*, and we are indebted to the same gentleman for specimens of seaweed, shells, and other objects of scientific interest.

Many other gentlemen whose names appear in the list have given us assistance with regard to Ornithology, Entomology, &c., and in addition to the thanks which will I feel sure be cordially voted by the members to the various contributors, I would suggest that a special letter of acknowledgement be forwarded by the President to each of them, and that this course should be adopted in future, immediately on the receipt of any donation; and, also, that when possible, the conventional and scientific names of any specimen received should be specially included in the letter acknowledging it.

A great opportunity for expansion has been afforded us by the acquisition of another room placed at the disposal of the Museum by the removal of the Society's Library, consequent on its transfer to the custody of the Shanghai Library. We have, however, refrained from utilizing the extra space thus afforded us until our financial position for the coming year had been determined; considerable expenditure having become necessary for converting some of the old show cases and the purchase of new ones.

With the re-arrangement and enlargement which we are now in a in a position to commence, I tkink new spirit might be infused and a greater impetus given to the affairs of the Museum by the assumption of the functions of Curator by several members, in place of by one individual as heretofore; each taking that province with which he is most familiar, or in which he is most interested. Let, for example, Zoology and Botany be undertaken by one, Geology by another, and Technology by a third. By such an arrangement a kind of committee would be constituted, each member of which would be able to call upon his friends for assistance in procuring specimens and information relating to his particular department; which would, consequently, be benefitted by the closer and more competent attention he could devote to its interests, and that, too, without any great tax on his leisure.

I cannot too strongly urge upon your attention the value which a good Technological collection would possess, or the easy and inexpensive manner in which it might be acquired. Specimens of all the products of Chinese labour, whether in agriculture, arts, or manufactures, would form a most interest-

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ing and suggestive collection; and I have no doubt that these could be procured through the medium of the several Consuls, and especially of the Custom House officials, in the different open ports; and that we might confidently rely—if proper application were made him—on the cordial co-operation of the Inspector-General of Customs, whose love of science and interest in the advancement of Chinese affairs would enlist his sympathies in our scheme. The formation of such a collection would impart new life to the institution and give interest and variety to its now somewhat monotonous exhibit, composed mostly of specimens of the Zoology of this province. The labour of arranging the specimens in cases would be but a small part of the work required in collecting each exhibit. The history, description, uses, and methods of preparation of its many interesting products should be gleaned—studious examination made—and the resulting information published for the public benefit. The collection would embrace the direct products of Chinese labour in their marketable state; that is, as they are produced and offered for sale by the farmer, artisan, or manufacturer. In arranging such a collection a classification should be adopted that is simple and at the same time comprehensive, and as we are limited both in means and space, it would be as well, perhaps, for us to confine ourselves to obtaining specimens for the three following simple divisions:—

1st.—All food substances.

2nd.—Substances used in the arts and manufactures.

3rd.—Natural History in relation to the production of the above.

For instance, in the 1st Dept. we might arrange cereals and legumes, fruits and vegetables, farinaceous substances, sugar, beverages, liquors, narcotics, spices, and condiments.

In the 2nd Dept. we could place all animal fibres, vegetable fibres, paper materials, dyes, colouring and painting materials, tanning materials, gums and resins, fats, oils and wax, medicines, etc.

The 3rd Dept. would embrace natural History in relation to or in any way connected with the production of the above, such as farm animals, animals found upon the farm in a wild state, animals denominated as "farm pests," and those useful as furnishing food, or from their destroying insects, domestic poultry, game birds, hybrids. Birds—beneficial or injurious—insects injurious to vegetation, arranged in regard to the plants on which they feed, together with artificial means of destruction, etc., etc.

I am aware that the utilitarian character of such a collection will strike some of the members of the Society as being foreign to the original design of the Museum. Still I venture to hope that before throwing the suggestion aside as useless or impracticable, it will receive due consideration from the officers and members. We receive Tls. 600 a year from the Ratepayers of the English and French Settlements of Shanghai under the idea of the Museum being a public benefit. But the accumulated contributions of the few years it has been in existence are nearly all so purely scientific that, while presenting points of interest to a few lovers of science, they possess but little else to recommend them to the general public. The Technological department suggested would, however, be of a more practical turn, and while but slightly interfering with the present routine of the institution would, I feel sure, be a benefit to the public at large; and while interesting to all, an honorable addition to our little Museum.

D. C. JANSEN,
Hon. Curator.

SHANGHAI, 10*th March*, 1881.

LIST OF CONTRIBUTIONS RECEIVED AT THE SHANGHAI MUSEUM DURING THE YEARS 1879 AND 1880.

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1879.					
May 1		Ephemera	Ephemera	Shanghai	A. Warrick.
„		Bittern	Botaurus stellaris		T. Howell.
9		Japanese Ibis 1 pair	Ibis nippon		
		Chinese Jay	Garrulus sinensis		
		Himalayan Magpie	Dendrocitta himalayana.		T. M. Young.
17		Smew	Mergus albellus.		
		Cinnamon Heron	Ardetta cinnamomea		G. C. Anderson s.s. "Apin"
		Grey Sandpiper	Totanus incanus		do. „
		Whimbrel	Numenius phœopus		do. „
		Peregrine Falcon	Falco peregrinus		do. „
		Teal	Querquedula crecca		R. H. Artindale.
		Red breasted Rail	Porzana erythrothorax.		do.
		Bohemian Chatterer	Ampelis phœnicooptera		through Capt. N. J. Anderson St. "José."
		Hawfinch	Eophona melanura		Geo. R. Corner.
			Garrulax picticollis		do.
		Eastern Bullfinch	Pyrrhula griseiventris		do.
			Pericrocotus cinereus		do.
		Paradise Flycatcher	Tchitrea incei		do.
		Large Reed Warbler	Calamodyta orientalis		
		Black Albatross		Yangtsze entrance	Capt. C. H. McCaslin.

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1879.					
		Great horned Owl	Bubo maximus		A. M. Gary.
		Falcated Teal	Eunetta falcata		G. C. Anderson s.s. "Apin"
		Pintail Duck	Dafila acuta		Dr. F. Burge.
		Avocet	Recurvirostra avocetta.		Dr. F. Burge.
		Cormorant	Phalacrocorax carbo.		
		Snake	Elaphis tæniurus		E. H. Keney.
		Golden Eagle	Aquila chrysaetos		
		Egret	Garzetta egretta		E. M. d' Almeida.
		Hoopoo	Upupa epops		do.
		Yellow necked Heron	Ardetta flavicollis	Wuhu	E. A. Deacon.
		Little Crake	Porzana minuta		Spence.
		Swallows	Cecropis arctivitta		Vict. Knott.
		Siberian Jack-daw	Lycos dauricus		do.
		A set of bow arrows, and arrows from South Sea Islands			Alfred Dent.
		Buzzard	Archibuteo strophiatus.		do.
		Chinese fox	Canis vulpes		J. J. Tucker.
		Little spotted Civet	Viverra malaccensis		do.
		Great horned Owl	Bubo maximus		do.
		Wild cat	Felis sinensis		O. Brand.
		Wasps nest			M. C. Adams.
		Frog spawn			J. F. Rodewald.
		Cuckoo	Cuculus canorus		do.
		Long eared Owl	Otus vulgaris		A. M. Gray.
		Sparrow hawk	Accipiter stevensoni	Shanghai	John Rennie.
		Common Heron	Ardea cinerea		Douglas Jones.

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1879. Jan. 26		Red start	Phoenicura leucocephala.	Shan	L. le Breton.
		White capped Red start.	Ruticilla aurorea		do.
Dec. 19		Hoopoe	Upupa epops		do.
		Grey Wood pecker	Picus mandarinus	Chinkiang	E. J. Davies.
		Arsenic Paste (1 Pot)			W. B. Kahler.
		Chinese Otter	Lutra sinensis	Interior of Race-course, Shanghai	C. Beurmann.
		Sparrow hawk	Accipiter nisus	Shanghai	M. Buchanan.
		Indian Rail	Rallus indicus	do.	do.
		Long eared Owl	Otus vulgaris	do.	do.
		2 Small fish			Capt. Orsted.
		Snake skin			W. S. Cox.
		2 Mandarin Ducks	Anas gallericulata		H. Sylva.
		1 Thrush	Garrulax picticollis		Geo W. Conner.
		1 Lot Butter flies		Kuangsi province	W. Mesney.
1880. Jan. 14		Bittern	Botaurus stellaris	Shanghai	Henry Morris.
Jun. 20		Rufous-backed Shrike	Lanius schack	Shanghai	D. C. Jansen.
		Long-eared Owl	Otus vulgaris	Woo-chow-fu	F. H. Mawhood.
		1 Box Sea Shells		Amoy	H. E. Hobson.
		Eastern Pelican	Pelecanus crispus	Wuhu	A. Lewis.
		Goosander	Mergus castor	Chinkiang	W. Harrison, R.N.
		Baer's Duck	Fuligula baeri		J. F. Bodewald.
		1 Pair	Hidorhynchus Struthersi.	Mongolia	Dr. Irwin.
March		Nest of Weaver bird			Dr. O'Grady, R.N.
		1 Pair Golden eyed Ducks (or Garrot)	Bucephala clangula	Tientsin.	Dr. Irwin.

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
		1 Black-eared Kite	Milvus melanotis	Shanghai	F. J. Williams
		1 Red start	Phœnicura leucocephala.	do.	do.
		1 Eastern Crane	Grus monacha	Woosung	G. G. Hopkins.
		1 Goosander	Mergus castor	Chinkiang	Paym: Harrison "Modeste"
		Tortoise shell Turtle	Chelonia umbricata		Mr. Chin.
		1 Green Woodpecker	Gecinus guerini	Shanghai	R. H. Artindale.
April		Sea Turtle	Chelonia mydas	Java Sea	Capt. Cutting, ship "Boyne"
		1 Common Heron	Ardea cinerea	Shanghai	Augustus Broom.
		Hoopoe	Upupa epops	Shaweishan.	W. Buchanan s.s. "Eldorado"
		1 Beetle	Scarabæus molussus		S. D. Veitch.
		1 Lesser Tern	Sterna minuta	Ningpo	H. B. Meyer, Ningpo.
May		1 Sea Eagle	Halliäetus albicilla	Shanghai	Capt. Anderson "Appin"
		1 Golden eyed Duck	Bucephala clangula		do. "
		1 Water cock	Gallicrex cristata		J. M. Fabris.
		1 Esquimaux Curlew	Numenius borealis	Shanghai	W. T. Phipps.
		1 Japanese Single thorn	Monocentris japonicus.	Japan Sea	R. Knott.
		1 Snake		Ningpo	P. Adams s.s. "Tunsin".
		1 Eastern Pelican	Pelecanus crispus	Foochow	R. W. H. Wood.
		1 Wandering Albatross	Diomedea sp:	Chusan Arch.	R. Knott.
		2 Oyster Catchers	Hæmatopus ostralegus.	Gutslaff	do.
		1 Painted Snipe	Rhynchæa bengalensis.	Shanghai	C. J. Dudgeon.
May.		1 Black naped Ind: Oriole	Oriolus sinensis		J. H. dos Rosarios.
		Collection of Snakes (6)			Lieut. Leslie, R.N.

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND	NAME OF CONTRIBUTOR.
1880.		An arrangement of silk cocoons in pendants from a circular top covered with red and green paper made and offered by women to the goddess Kwan-yin at the temple in Hsi-yuen, in the hope of having good silks crops.			A. Gordon.
		Sea swallow	Sterna hirundo		Dr. Burge.
Aug.		1 Beetle			T. Ramsey.
		1 Baer's Duck	Fuligula baeri		J. M. Young.
		1 Crab		Russian Tartary, Saghalien	T. M. Irwin s.s. "Appin"
		1 Birch bark water bucket made by the Ghilaos of the Amoor			H. Bolland.
		1 Butterfly			W. Lamont.
Oct.		Common snake			J. T. Cheetham.
		1 Land rail	Ortigometra crex		W. T. Phipps.
		1 Blue Rock Thrush	Petrocinela manilla		E. J. Davis.
		Common snake			F. J. Marshall.
		Hammer headed shark.	Squale martean		R. Knott.
		A 4 legged chicken			J. A. Primrose.

DATA.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.					
		1 Pair Pheasants	Pukras darwinii		W. Gubbins.
		1 Bottle Seaweed		Maucka cove Saghalien	Capt. Anderson s.s. "Appin"
		2 do.		Japan (Stream)	do. "
		1 Small fish		Vladivostock	do. "
		1 Snake		do.	do. "
		1 do.		Saghalien	do. "
		4 Star fish	Asterina gibbosa		do. "
		1 Slow shrimp	Axius stirynchus		do. "
		1 Racoon Dog	Nyctereutes procyonoides.	Nanking	Capt. N. P. Anderson.
		1 Hornets' nest			Messer Blain &'Co.
		1 Cake wax			Père Heude.
		A few geological specimens.			I. M. G. Collaço.
Oct.		1 Kingfisher	Halcyon gularis	Amoy	H. E. Hobson
		1 do.	„ coromandeliana	do.	do.
		1 Hen's Egg			C. M.
		1 Box Butterflies		Ichang	Jas. Reeks.
		Specimen of Larch Resin.		Amoor	Capt. G. C. Anderson. S. S. "Appin"
		„ Edible Seaweed		Saghalien	do.
		„ Fern with Seed	Osmunda (Regalis?)	Siberia	do.
		„ Beach Sand		Raka Maka Bay	do.
		„ Pebles & Debris		Maucka Bay	do.
		„ ditto (1)		Maucka Bay	do.
		„ ditto (1)		Prough Point	do.
		„ ditto (1)		Slariamsky Bay	do.
		„ ditto (8)		Nicolaievsk	do.
		„ ditto (24)		Dai Saghalien	do.

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.		" ditto (2)		Vladivostock	do.
		" ditto (1)		do.	do.
Feb. 3	1	"	Scutella sp.	Apes' Hill, Takow, Formosa, very abundant, some individuals were raised up on their edge while others were embedded as they would have lain in life on sea bottom	Dr. H. B. Guppy. H. M. S. "Hornet"
	2	Barnacles	Balanidea	Apes' Hill, Takow, Formosa, mostly small & evidently embedded in situ.	do.
	3		Corals	do. A species of the genus of corals resembling cyclolites.	do.
	4		Spines of Echinoideă	do. Often of considerable size; was only able to find one sea urchin and that a small one.	do.
	5		Sp. of Pecten Ostrea and other bivalves	do.	do.
	6		Casts of Spiral Univalves.	do.	do.
	7		Polyzoan, Scutella etc on shells.	do. The lime stone in which these fossils abound.	
	8		Small crab, Sharks' tooth & some corals	dips to the East at an angle of 35° to 40°. Many of the fossils were cracked through and otherwise damaged as if from the pressure they were subjected to during the process of [up heaval. The occurrence of polyzoa, balanidea, and serpula on some of the fossils (especially the scutella) shews that the limestone was formed gradually,	

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
				since time was allowed for the growth of the parasites after the death of the animal on the shell of which they had planted themselves.	
Feb. 3	904	Fossils.	. . . .	Found in lower part of Ape's Hill.	Dr. H. B. Guppy.
	907	do.	. . . .	Takow, Formosa.	H. M. S. "Hornet".
	908	do.	. . . .	do.	do.
	911	do.	. . . .	do.	do.
	912	do.	. . . .	do.	do.
	913	do.	. . . .	do.	do.
	914	do.	. . . .	do.	do.
	918	do.	. . . .	do.	do.
	920	do.	. . . .	do.	do.
	926	do.	. . . .	do.	do.
	928	do.	. . . .	do.	do.
	929	do.	. . . .	do.	do.
	930	do.	. . . .	do.	do.
	931	do.	. . . .	do.	do.
	932	do.	. . . .	do.	do.
	933	do.	. . . .	do.	do.
	934	do.	. . . .	do.	do.
	935	do.	. . . .	do.	do.
	936	do.	. . . .	do.	do.
	937	do.	. . . .	do.	do.
	938	Fossil	Scutella . .	Ape's Hill, Takow.	
	943	do.	do.	Lower part of Ape's Hill, exemplifying the cracked condition of some of the fossils.	

3*

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.					
Feb. 3	944	do.		Lower part of Ape's Hill, Takow.	Dr. H. B. Guppy, H. M. S. "Hornet".
	945	do.			
	952	do.			
	953	do.			
	954	do.			
	955	do.			
	956	do.			
	961	Limestone			
	962	Compact Limestone		from Saracen's Head, Takow.	
	967	Fossils		Lower part of Ape's Hill, Takow.	
	969				
	972				
	975				
	976				
	977	Fossil Crab		do.	
	978	do.		do.	
	981	Fossil Scutella		do.	
	982	Compact Limestone		Such as occurs in the higher part of the hill shewing the honey-combed and beaten surface.	
	983	Limestone			
	984	Fossil Scutella		do.	
	986	do.		do.	
	988	do.		do.	
	990	do.			
	531			Pescadores, Formosa Channel	
	532			do.	
	991	Calc-spar and red oxide of Iron	Hœmatite	do.	
	992		Amygdaloid	Pescadores, Pong-hou Island.	
	993			" Conglomerate composed of	

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.				coral debris, shells and fragments of basalt which is at present forming at high water mark Pong-hou Island.	Dr. H. B. Guppy, H. M. S. "Hornet".
	994	Trap rock		Finely cellular Trap rock occurring above the massive basalt Pong-hou Island.	
	995	Basalt		Pescadores, Pong-hou Island.	
	998		Amygdaloid	" Containing nodules of hœmatite. Pong-hou Island.	
	999			" Light coloured clayish rocks intervening between the "taterite" and the basalt and forming a layer 3 inches thick. Pong-hou Island.	
	1001	Basalt		" " "	
	524	Granite		Amoy, From the hills behind the city.	
	525			"	
	527			"	
	529	Granite		" from Kulangsu Island altered by the proximity of a trap dyke	
	886	Gneiss		from the Island of Woo-seu of Amoy harbour.	
	887	Crystals of quartz and Felspar		" do.	
	888	Trap rock from some dykes		" do.	
	889 890	} Gneiss		" do.	
Feb. 3	892	Trap rock from dykes		" do.	

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.	924	Granite		Swatow.	Dr. H. B. Guppy, H. M. S. "Hornet".
	922	Coloured Clay		„ From a kind of vein in granite,	
	—	Granite		Chinchu, North of Amoy.	
	896	Granite		Namoa Island.	
	897 898	Oolitic Granite ?		do.	
	901			Namoa Island, Rock intermediate in character between ordinary granite & felste	
	809	Granite		Pootoo Island.	
	812	Granite (imperfectly crystallised,)		do.	
Feb. 3.	814		Porphyritic Eurite	do.	
	815	Compact Granite		do.	
	452	Porphyritic rocks		Ting-hai, Chusan, used for paving roads.	
	453			„ „ a light coloured flinty rock from the hills north of Ting-hai city.	
	454			do. A slightly granular rock from the top of the highest hill north of Ting-hai city.	
	455 456	Apparently a partially fused Conglomerate		do. Hills, north Ting-hai city.	
	457	Dark flinty rocks		do. „ „	
	458	Granite		do. „ „	
	461/1	Light coloured porphyritic rocks.		do. „ „	
	463	Light coloured flinty rocks.		N. Coast of Chusan	

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1879.	464	Dark flinty rock .	. . . .	Chusan. From the hills near the centre of the Island overlooking Ting-hai.	Dr. H. B. Guppy, H. M. S. "Hornet".
	465	Granite . .	. . . .	"	
	468/9	Dark porphyritic rock	. . . .	" From Beacon hill, N.W. of "	
	471	Light coloured porphyritic rock.	. . . .	do. "	
	473/4	Granite . .	. . . .	" From the hill overlooking the west wall of Ting-hai city.	
		Granite . . .	. . . .	" from Joss house hill, Ting-hai city.	
	816	Undetermined rock	. . . .	Yung river from some hills on the right bank 4 miles below Ningpo.	
	820	Flinty porphyritic rock	. . . .	" do. "	
	821	Apparently an argillite altered by heat	. . . .	" do. "	
	824	Flinty porphyritic rock	. . . .	Yung river from some hills on the right bank 4 miles below Ningpo.	
	825	Undetermined rock	. . . .	ditto	
	396	Light blue undetermined rock.	. . . .	Snowy Valley.	
	397	Chocolate coloured undetermiued rock			
	398	Rock intermediate in character between the syenitoid and calcareous rock.	. . . .	Near the How-ying-tang.	
	399	Undetermined rock	. . . .	From the highest part of the Maou-kao-tai	
	401	Conglomerate .	. . . .	From the Siang-yang kong 4 miles west of Shi-dou-za.	
	406	Dark limestone .	. . . .	From near the foot of the How-ying tang Falls.	

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.					
	407	Hornblende rock .	. . . .	From the cliffs near the 400 feet Fall.	Dr. H. B. Guppy, H. M. S. "Hornet"
	408	Light coloured rock often disintegrated	. . . .	ditto. ditto.	
	410	Blueish rock, (undetermined)	. . . .	From where the 400 feet Fall leaves the cliff.	
	411	A white rock apparently of quartz and felspar.	. . . .	From near the Song-ying-tang.	
	413 416	Hornblende rock;	. . . .	From the cliffs near the 400 feet Fall.	
	417	Undetermined dark rock.	. . . .	From near the How-ying-tang.	
	418	Syenitoid ? Rock .	. . . .	ditto do.	
	419	Hornblende ? Rock	. . . .	From the spar of the Pih-ko-shan.	
	421	Light coloured quartz rock.	. . . .	From the Pih-ko-shan water Falls.	
	422	White felspathic rock	. . . .	ditto ditto.	
	423	do. do.	. . . .	ditto ditto.	
	424	Loft white felspathic rock.	. . . .	From the Siang-ying kong 4 miles.	
	425	ditto.	. . . .	N. W. of Shi-dou-sa.	
	427	Conglomerate .	. . . .	From the hill Siang-yang kong 4 miles West of Shi-dou-su.	
	429	Undetermined light blue rock.	. . . .	ditto "	
	431	Dark clayish sandstone	. . . .	ditto "	
	430/2	Quartzite (2)	. . . .	ditto "	
	434	Red Argillite . .	. . . .	ditto "	
	435	ditto.	. . . .	ditto "	

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.	436	Conglomerate .	. . . .	ditto „	Dr. H. B. Guppy, H. M. S. "Hornet".
	437	Dark quartz rock .	. . . .	Snowy valley From the Pookoo ling hill	
	438			„ „ From the top Siang-yang Kong hill.	
	439				
	440	Brown Shale	. . . .	„ „ From the Pookoo Ling hill.	
	440	Undetermined rock.	. . . .	Tien dong near Ningpo.	
	445/6	Compact felspathic quartzite.	. . . .	„ „ from the Hill overlooking the Temple at Tien dong on the West.	
	447	Quartz rock . .	. . . .	„ From the valley one mile below the temple.	
	448/9	Quartz rock, streaked with felspar.	. . . .	„ From hill on the east side of the hills at Shu-bah.	
	450	Quartz rock . .	. . . .	„ From the hills one mile below Tiendong Temple	
	836	Shells . . .	. . . .	Hankow and neighbourhood, found on the banks of the Yangtze.	
	839	Alluvial clay shewing the burrows of worms	. . . .	Hankow and neighbourhood, found on the banks of the Yangtze.	
	845	Shells . . .	. . . .	Hankow and Embedded found on the banks of the Yangtze.	
	842	Small rounded masses found in the worm burrows in the alluvial clay.	. . . .	„ „ „ do „	
	843	Laminated alluvial clay.	. . . .	do which forms the banks of the Yangtsze at Hankow.	
	847	Quartz rock . .	. . . .	do From hills about 9 miles N.W. of Hankow.	

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.	848	Red clay rock	Argillite	do From hills 405 miles west of Han-yang hill.	Dr. H. B. Guppy, H. M. S. " Hornet".
	850	Shells	Paludinea	do Found embedded in the banks of the Yangtsze.	
	852	do.		" " "	
	853	do.		" " "	
	849	Sandstone	Quartzite	" " "	
	856	Quartzite		" From the Ta-kin-shan King-kau.	
	857	Clay slate		" " " "	
	858	Micaceous sandstone		" " " "	
	866	Quartzite sandstone		" Han-yang hills.	
	873	Conglomerate		Hankow & neighbourhood, Woochang hills	
	874	Sandstone		do. Takin-shan hills King-kan.	
	875	do.		do. do. do.	
	880	Quartz rock		do. From some hills on the right bank of the King-kan river 4 miles from the Yangtsze.	
	882	Compact Limestone		do. do. do.	
	884	do.		do. do. do. 25 miles above the Yangtsze.	
	884	Coarse sandstone		Kiukiang From Si-shan range of hills.	
	855	Talcose schist		" do. do.	
	861	Sandstone		" do. do.	
	862	Schistose rock		" do. do.	
	864	Undetermined rock		" do. do.	
	872	" grayish rock		" do. do.	
	860	Hornblendic slate		" do. do.	
	876	do. schist		" do. do.	

DATA.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.	476	A greyish heavy rock (undetermined)	. . . .	Chefoo west of Chefoo harbour.	Dr. H. B. Guppy, H. B. M. S. "Hornet".
	477	Calcareous concretions	. . . .	do. encrusting the white compact limestone west of Chefoo harbour.	
	486	Blueish flaky mineral	. . . .	do. do. ,,	
	487			do. do. ,,	
	490	Metamorphic limestone	. . . .	do. do. ,,	
	491	Granite rock	. . . .	dr. do. ,,	
	492	Calcareous concretions encrusting metamorphic limestone	. . . .	do. do. ,,	
	493	Granite rocks	. . . .	do. do. ,,	
	496	White metamorphic limestone	. . . .	do. do. ,,	
	497	do. do. do.	. . . .	do. do. ,,	
	499	Mica schist	. . . .	do. do. ,,	
	500	Crystalline metamorphic limestone	. . . .	do. do. ,,	
				do. do. ,,	
	501	Mica schist	. . . .	do. do. ,,	
	538	Mica schist	. . . .	Chefoo west of Chefoo Harbour	
	539	do.	. . . .	,, do.	
	741	Granite Rock	. . . .	,, do.	
	746	Compound Mica schist	. . . .	,, do.	
	747	Granite Rock	. . . .	,, do.	
	748	Mica schist	. . . .	,, do.	
	749	Quartz	. . . .	,, From the hills south of Chefoo harbour.	
	756	Mica schist	. . . .	,, do.	

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.	766	Mica schist		Chefoo from the hills south of Chefoo harbour.	Dr. H. B. Guppy, H. M. S. "Hornet".
	755	do.		„ do.	
	789	Gneiss		Maokau Island from the cliffs on the Is.	
	790	Quarts pebble		Corean archipelago; fits into the hollow of the sandstone (specimen 791).	
	791	Sandstone			
	795	Gneiss			
	796	Undetermined rock		Maokau Island from the cliffs.	
	798	do.		do. „	
	801	Gneiss		do. „	
	803	Undetermiud rock.		do. „	
	805	Gneiss		do. „	
	806	Quartzite sandstone		do. „	
		2 Hares	Lepus Sinensis	Shanghai	D. C. J.
		1 Eastern Pelican	Pelecanus phillipensis	do.	„
		2 Geese	Anser cygnoides	do.	„
		2 Bean geese	Anser segetum	do.	„
		9 Shoveler Ducks	Spatula clypeata	do.	„
		1 Goosander	Mergus castor	do.	„
		1 Curlew	Numenius arquatus	do.	„
		1 Eastern crane	Grus monacha	do.	„
		1 Woodcock	Scolopax rusticola	do.	„
		1 Lapwing	Vanellus cristatus	do.	„
		2 Green wood peckers	Gecinus guerini	Ningpo	„
		1 Common crested myna.	Acridotheres cristatellus.	do.	„
		1 Starling (grey)	Sturnus sericeus	do.	„
		1 do.	„ cineraceus	do.	„

DATE.	NO.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	WHERE FOUND.	NAME OF CONTRIBUTOR.
1880.		1 Bi-coloured munia	Munia malabarica .	Ningpo	D. C. J.
		1 Naumann's thrush	Turdus naumanni	Shanghai	"
		4 Mongolian Sand grouse.	Syrrhaptes palasii	Chefoo	"
		12 Quail . .	Coturnix communis	Shanghai	"
		3 Red legged Patridges	Cacabis chukar .	Chefoo	"
		5 Ring necked Pheasants.	Phasianus torquatus	Shanghai	"
		1 Silver Pheasant .	Euplocomus Nycthemerus.	Kwangse	"
		1 Set of Head ornaments of a chief.	. . . .	Admiralty Islands . . .	Geo. L. Skinner.
		1 Aino's coat & leggings, woven from bark.	. . . .	Japan	H. Liddell.
		1 Poisoned Spear .	. . . .	Admiralty Islands . . .	Geo. L. Skinner.
		1 Blow pipe for arrows	. . . .	do.	ditto.

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JOURNAL
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ARTICLE I.

EARLY EUROPEAN RESEARCHES INTO THE FLORA OF CHINA.*

BY
E. BRETSCHNEIDER, M.D.

IT is proposed in the following pages to give a sketch of early botanical researches in China by European naturalists and at the same time to rescue from oblivion some curious ancient documents showing the early attempts to illustrate the botanical features of the Middle Kingdom. I have thought that a critical review of these accounts in the light of modern science and a republication of some of them, which I found hidden in ancient periodicals, now little known and difficult of access, would prove of some interest and be even practically useful to collectors of Chinese plants and writers on the same subject.

Although many of the celebrated Chinese vegetable productions are mentioned in the book of Marco Polo and by other European mediaeval travellers in China, I do not intend to trace our early acquaintance with Chinese plants back as far as the middle ages. In my investigations I shall start from that period when these regions became first known to us through the learned and hard-working Jesuit missionaries, the illustrious pioneers of Oriental studies in the far East. On the other side, I shall not extend the area of my researches beyond the Linnean period.

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* Read before the Society on the 19th November, 1880.

I.—BOTANICAL INFORMATION WITH RESPECT TO CHINA SUPPLIED BY THE JESUITS.

I may premise, although these facts are generally known, that, after the Portuguese had made their appearance in Chinese waters in the beginning of the 16th century (Raphael Pestrello in 1516, Ferd. Andrade 1517), they subsequently established factories at Ningpo, carrying on trade also with Amoy. Besides this they settled near Canton and at Macao which latter place on account of its favourable situation soon became the basis and the starting point for the commercial enterprises of the Portuguese in Eastern Asia. It is also well known that *Franciscus Xavier* was the first Jesuit missionary, who ventured to visit China in 1552, but he died in the same year on an island called Sançian in sight of the Chinese coast. Nearly 30 years elapsed before a new attempt was made by the Jesuits to gain a footing in China. From 1581 to 1583 they sent successively four missionaries to Macao. One of them was *Matthaeus Ricci*, who holds one of the most conspicuous places in the history of the Chinese missions. By persevering efforts he obtained permission to reside at Peking, where he arrived in A.D. 1600. At the time of Ricci's death, in 1610, the number of Jesuit missionaries in China had already considerably increased and we find them then working in many parts of the Empire, (besides *Peking*), namely at *Canton*, at *Shao chou fu* (Kuang tung province), at *Nanking*, *Shanghai*, *Su chou fu*, *Sung kiang fu* (all in the province of Kiang nan [Kiang su]), in which they then had altogether 90 churches; at *Hang chou fu* (Che kiang prov.); at *Nan ch'ang fu* (Kiang si prov.). In the provinces of *Hu kuang* and *Sze ch'uan* they had also built many churches and it appears, that at that time there were missionaries also in *Fu chou fu* and in some places of the province of *Shan si*. They were not only assiduously labouring to learn the language and to preach the gospel, but they employed themselves also in acquiring knowledge of the customs of the people and their literary works and they directed their attention likewise to the features of the country and its natural productions etc. The Jesuit missionaries have always had the well-merited reputation of great learning and of a classical and scientific education; and it seems that those, who were sent to convert the Chinese, had been especially trained with the object of convincing the latter, by means of striking experiments, of the superiority of western science, and of demonstrating to them the accuracy of Europeans in observing natural phenomena, and their ingenuity in making the laws of nature serviceable to the purposes of industry, economy and the arts. The early success enjoyed by the propaganda of the Jesuits in China was principally due to the great authority they had acquired at the Court of Peking on account of their skill in astronomy, physics, chemistry etc. Many of these distinguished scholars used to investigate with a strong inclination objects of natural history, and thus we find in the collections of the letters and memoirs of the Jesuits in China a great number of articles treating of mineralogy, zoology, and botany, supplying a mass of most valuable information. The circumstances, in which they lived among the natives, becoming familiar with the language and adopting the native customs, gave them many more facilities for gathering information than travellers or naturalists of the present time, who are looked upon with suspicion, constantly watched, and often molested by the people. There are still in the interior of China many common Chinese plants, known to us only from the description of the Jesuits, as for example the tree, which yields the *varnish* for making the well known Chinese lacquered ware, or the *Illicium anisatum* of China (Loureiro). No specimens of these trees have, as far as I can judge from what has been published with respect to Chinese plants, come to the notice of later botanists.*) I need hardly say, that the accounts left by the early missionaries, concerning Chinese botany, have for the greater part no claim to be considered scientific papers in our modern sense. Their descriptions however of the plants applied by the natives to economic or other useful purposes, and also of wild-growing medicinal and other remarkable plants, are generally quite satisfactory and popularly correct. The Chinese names are often added. In most of the cases there can be no doubt what plant they meant and we are thus enabled to supply the respective scientific names, as far as these plants are known to botanists.

It does not seem, that any botanical collection was sent from China to Europe by the Jesuit missionaries previous to the middle of the 18th century. Father *d'Incarville*, who resided in Peking between 1740 and 1757, appears to have been th first who collected plants and seeds for his instructor Bernb de Jussieu, as will be shown in a subsequent chapter.

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*) I shall treat at greater length of these and similar botanical questions relating to China in a more comprehensive treatise on Chinese botany, which is now in course of preparation.

The scope of this paper is not intended to give a full accoun of all that has been written by the Jesuits in China on botanica matters. That would unduly swell the limits of this chapter I shall draw up merely a list of their works or scattered mino articles dealing with the vegetable productions of the Middl Kingdom, selecting only a few memoirs, presenting a particula interest for a more detailed review, reproducing occasionally th text in the original.

But before proceeding to a chronological survey of the publications of the ancient Jesuit fathers, one of the earlie works on China, published before their advent, deserves to b noticed here.

J. GONZALEZ de MENDOZA's HISTORY OF THE GREAT AND MIGHTY KINGDOM OF CHINA was first printed in Spanish, in 1585, in Rome. An English version of the book (to which I refer) was published in 1853 by the Hakluyt Soc. Mendoza, an Augustin monk, had himself never seen China. The material for his book has been derived from the reports of some friars of the same order, who had found opportunity to visit China. He depends mainly upon the accounts furnished by the monk *Martin de Herrada*, who had been taken, in 1575, by a Spanish ship from Manilla to the Chinese port of *Ts'üan chou fu* (prov. of Fu kien) where he was allowed to spend three months. The information given in this little book with respect to the vegetable productions of China (I, 14. 15. 82.) are very meagre but not devoid of interest. The excellence of the Chinese *Chestnuts* is there praised and there is noticed also the great abundance of large *Melons*. We are further told that "the Chinese have a kind of *Plum*, that they call *lsechias*, of an excellent gallant taste." This is, I think, the first mention made by Europeans of *Lichis* (**Nephelium Litchi** Camb.). We are further more informed in the same work that the Chinese, besides Wheat, Barley, Millet (panizo), cultivate also the same **Maize**, which constitutes the principal food of the Indians in Mexico. This latter statement made at so early a date has a peculiar interest for us, for it is now a well established fact that Maize is not indigenous to China but has been introduced since the discovery of America.

One of the earliest accounts given of the Chinese Empire by Jesuit missionaries is that by **ALV. SEMEDO**. He was of Portuguese origin, born 1585, arrived in China in 1613, and died in Macao in 1658.*) As he himself states in the preface to his **RELATIONE DELLA GRANDE MONARCHIA DELLA CINA,** he wrote this work about 1633, but it was first published only in 1643, in Rome. I quote in the following the French translation of it made by Coulon 1645, but translate the quoted passages into English.

The following are the remarks of Semedo concerning Chinese plants:

1. The **Peaches** of the province of Xonsi (Shensi) are of prodigious size, some of them of a red color outside as well as inside, others yellow and resembling our peaches. The same province is also famed for its **Grapes.** (p. 8.)

2. The province of Honan produces the best **Apricots.** (p. 22.)

3. The prov. of Xan tung (Shan tung) abounds in large and excellent **Pears** (p. 29.)

These large pears are already mentioned by Marco Polo (Yule ed. 2. II 184.

4. There is a kind of fruit grown everywhere in China, which they call *su su* in their language. The Portuguese use to term it *red Fig.* It bears however no resemblance to a fig, for it is of a red color outside, contains a gold-colored pulp and seeds resembling almond kernels. Its shape is that of an orange but it varies in size. It has the skin very soft and is of a delicious flavour. The best are grown in the colder parts of China, viz. in the provinces of Honan, Xensi (Shensi), Xian si (Shan si), Xan tung (Shan tung) and especially in the last named, where they use to dry them and send them off to the other provinces of the Empire. When dried this fruit resembles somewhat our figs, but it is superior in flavor. (p. 7.)

This is without doubt the **Diospyros Kaki** L. (*D. Schitse.* Bge.) a very common fruit tree all over China, where a great many varieties of it are cultivated. The Chinese name of the fruit is 柿 子 *shi tsz'*, in the Amoy dialect *su tsu.*

5. The Jesuit Father *Ferraris* in his *Hesperides* (publ. in 1646) p. 430, describes an *Aurantium sinense olivae magnitudine figuraque olivae,* referring to Semedo. This is probably **Citrus japonica** Thb., var. fructu elliptico, of which Semedo seems to have communicated some account to Ferraris.

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* The biographical notices given in this paper concerning the Jesuit missionaries, are for the greater part derived from the pamphlet published in 1872 by the Jesuits at Shanghai under the title of: *Catalogus Patrum ac Fratrum e Soc. Jesu qui in Sinis adlaboraverunt.*

6. The province of Han chu (probably *Hang chou fu*, the capital of Chekiang, is meant), produces a peculiar fruit called *yam mai* by the natives. It is of the size of a plum, of a globular shape and resembles in color and taste the mulberry. The tree to which this fruit belongs bears however no resemblance to the mulberry tree. (p. 8.)

The author means the **Myrica sapida** Wall., a common fruit in Chekiang, in Chinese 楊梅 *yang mei*.

7. The province of Peking produces **Maize**, **Wheat** and some **Rice** for the use of the Emperor's court, the mandarins and the soldiers. An excellent kind of rice, which they eat boiled in water, without other ingredients, comes from Nanking. (p. 5. 30.)

This is the rice known under the name of *glutinous rice*. In Peking it is called 江米 *Kiang mi*.

8. The island of Hai nan produces the famous odoriferous *Eaglewood* and the wood called *hua li mo* by the natives, *Rosewood* by the Portuguese. (p. 13.)

According to Loureiro (Fl. cochin. 327.) the Aloewood (or Eaglewood) of Cochinchina is yielded by **Aloexylon Agallochum**, but nobody after Loureiro has seen this tree. In India *Aquilaria Agallocha* Roxb. is said to produce Aloewood.—The wood which the Chinese call 花黎木 *hua li mu* is well known in this country and sold even at Peking, but the tree by which it is produced is unknown to botanists.

9. Belle-Isle (thus Semedo terms Formosa) produces *Pepper* which grows in the forests. *Cinnamon* is found there in the mountains. The *Camphor trees* of this island attain an extraordinary height. *China-root* and *Salsapariglia* are also found there. (p. 15.)

Camphortrees (**Cinnamomum Camphora**. Nees) are indeed a prominent feature of Formosa. Chinese Cinnamon (**Cinnamomum Cassia** Bl. and other species) is known to grow in the provinces of Kuangsi and Kui chou. I am not aware that modern travellers have noticed it in Formosa. China-root is *Smilax China*, L. and other species.

10. The **Rhubarb** plant is found in the province of Xensi (Shensi). It grows to a considerable height. Its leaves are larger than those of cabbage. (p. 23.)

At the time of the Ming dynasty the present department of *Si ning fu*, still famed for its Rhubarb, belonged to the province of Shensi.

11. In the province of Liao tung a root is produced which is sold at the double price of its weight in silver. It is a marvellous medicine, which is able to increase the strength of the frame and to restore the exhausted animal powers. The Chinese call it *Gin sem*. (p. 31.)

This is it seems the earliest mention made by a European author of the celebrated *Gin seng* **Panax Ginseng** C. A. Mey., sin. 人參 *jen shen.*—Liao tung is an ancient name for the present Shin king or Chinese Manchuria.

12. They have a kind of fragrant flowers, called *la mui*, which appear in winter aftor the leaves have fallen. They are of a yellow color and waxlike appearance.

Chimonanthus fragrans. Lindl. sinice: 蠟梅 *la mei.* It puts forth its flowers in December, in Peking. (p. 9.)

13. They have also a kind of lily *(Lys.)* which they term *tiao hoa* and keep it in their houses. For these plants thrive and blossom in the air with their imperishable roots out of the ground (p. 6.)

According to Bridgman's Chin. Chrestom. (resp. Dr. Williams) p. 452 (5). 吊花 *tiao hua* (hanging flower) is the Chinese name for the Airplant. The latter is a general name for several species of **Aërides** and **Vanda**, possessing the peculiar property of existing many months suspended in air.

14. Large boats loaded with *Lamp-wicks* are frequently met on the rivers in China. These lamp-wicks are made from the pith of a rush, which the Chinese know how to take out.

This rush is, as Dr. Hance has first proved, (Journ. of Botany 1875 p. 106) the **Juncus effusus.** L.

15. Semedo is the first of the missionaries who notices the *Tea* plant in China and who gives some account of the preparation of the leaves and their use. He states that *Cha* (茶) is the name of the leaf of a tree, which resembles the Myrtle etc. (p. 27.)

16. Semedo mentions also (p. 7.) among the fruits of Canton and Fukien the *Lichi* (**Nephelium Litchi.** see above Mendoza) and first speaks of the *Lum yen* (**Nephelium Longan.** Camb. sin: 龍眼 *lung yen.*)

17. Finally Semedo reports (p. 4.) that the Chinese have an excellent *Varnish*, which they call *charam*, and which is yielded by a tree.

There can be no doubt, that S. means the famed Chinese varnish, sin. 漆 *t'si*, produced by a kind of *Rhus*, but I am not prepared to give any explanation, with respect to *charam*, which cannot be a Chinese name. He repeats the same name on p. 13. Constancio in his Dicionario da lingua Portugueza states that this term, still in use in Portugal to designate Chinese Varnish, is of Asiatic origin.

We come next to **MARTINI's** famous **ATLAS SINENSIS.** *Martinus Martini* was born in 1614 at Trent (Southern Tyrol, Austria.). He arrived in China 1643, returned in 1653 to Europe by way of Batavia and landed at Amsterdam, where he made arrangements for publishing his work. After this he proceeded to China again and died at Hang chou fu (Che kiang) in 1661.

The first edition of Martini's *Novus Atlas Sinensis*, published in Latin, bears no date but the concession for printing is dated Vienna January 7. 1655. This work is a short geographical description of the provinces of China, translated it seems from a Chinese work, but the author has added also many of his personal observations. I shall extract those passages relating to the vegetable productions of the different provinces.

1. Territorium urbis Peking producit optima *Poma*, *Pyra*, *Pruna*, *Frumenti* ac *Milii* non parum, Leguminum omnia fere genera. *Nuces* adhaec habet et *Castaneas*, nec non *Ficus* et *Uvas*, ex quibus tamen vinum non coficiunt. (p. 32.)

2. Provincia Xantung, (Shan tung) producit optima varii generis *Pyra*, *Castaneas*, nucesque alias, *Prunorum* verum vim tantam, ut siccata ea sicuti et pyra recentia, cum reliquis communicet provinciis: ad haec pomi ibi genus est, *su cu* vocant incolae, quod licet in aliis reperiatur provinciis, illic tamen abundat magis. (I omit the detailed description of the fruit.) (p. 53.)

By Martini's Plums we have probably to understand *Jujubes* for which the province of Shantung is famed as well as for the *shi tse* (*su tsu*, comp. above Semedo 4,). The description Martini gives of the Diospyros Kaki is in accordance with Semedo's account of the same fruit.

3. Urbs Tung chuen (Sz' ch'uan prov.). Magnus *Castanearum* ac *Prunorum* ubique proventus, sed et *Saccari cannas* fert. (p 70.)

4. Urbs Quei te (Honan prov.). *Granata* hic sunt praestantissima a quorum copia ac praestantia ultima civitas Xe ching nomen habet, quasi dicas pomorum granatorum moenia. (p. 60.)

The Chinese name of the Pomegranate is 石 榴 *shi liu*, but the name of the city to which M. evidently alludes is 柘 城 *che ch'eng hien* and this name has nothing to do with the pomegranate.

5. Urbs Tali (prov. Iunnan). In hoc tractu *Ficus* nascuntur Europeae, quas Sinae *vu hoa quo* dicunt, ex eo indito nomine, quod nullo praevio flore ut reliqui fructus solent crescat, Vu hoa enim "sine flore" significat, "quo" vere fructum. (p. 158.)

The common Fig, Ficus Carica L., sin. 無 花 果 *wu hua kuo* (fruit without previous flower) is cultivated throughout China, but is not indigenous there.

6. Martini speaks of the superior quality of the *Grapes* in the prov. of Shansi. The natives do not use them for making wine, as the missionaries do, but only dry them in order to sell these raisins all over China. (p. 37.)

7. Urbs Focheu (prov. Fo kien). Maxima est in australibus hujus provinciae partibus et praecipue in hujus urbis territorio copia fructus illius quem *Lichi* vocant, Lusitani Macaenses *Lichias* dicunt. Nascitur in magnis proccrisque arboribus, quarum folia Lauri imitantur, e ramorum summitatibus racemi prodeunt, in his ut in uvis fructus est, sed rarior ac longioribus pedunculis dependet. Fructus figura omnino croculum refert, magnitudine nucem aequat juglandem, parvum strobulum seu nucem pineam repraesentat, squamoso sed non adeo crasso cortice, nam ad membranae tantum crassitiem accedit, adeoque vel sola manu facile detrahitur. Intus succulentus est nucleus albi coloris saporis ac odoris rosacei suavissimi, cum maturus est fructus purpurei est coloris, videaturque ipsae arbores purpureis circumquaque quasi cordibus ornatae, amoenissimo adspectu astantium oculis arridere. Os seu calculum caro intus ambit, ac circumdat, qui quo mole minor est, eo censetur fructus melior ac praestantior. Recte hunc fructum regem fructuum dici posse, saepe ego mecum cogitavi, qui quasi esui ac spectantium voluptati natus tantum esset, ita delectat, ut numquam satiet. (p. 122.)

Urbs Ping lo (prov. Quang si). Lichiarum fructus magna ubique copia, cujus arbores *Li pu* civitati nomen dederunt. (p. 145.)

Alter etiam fructus quidam rotundus est, cortice superiori haud absimilis, *lung yen*, hoc est draconis oculum, vocant; superiori mole non aequalis est, paulo minor ac rotundior, ut cerasa fere nostra majora, pelle tamen aliquantulum lichi duriori magisque squamosa constat. Utrumque etiam Sinae exsiccant et ex hac provincia (Fo kien) per totum imperium ad delicias etiam siccus distrahitur, nullo tamen modo cum recentibus comparari potest, cum suavissimus ille succus totus fere exhalarit. Ex lichis etiam exprimitur liquor, quem vinum Sinenses vocant, suave satis sed rarius (p. 122.)

Est et fructus in hoc territorio quem Sinae *Mui gin li* vocant, i. e. pulchrae mulieris pruna eaque, magna sunt ac praeclara quae Damascena illa magnitudine ac praestantia superant, figura rotunda magis sunt quam elliptica aut ovali. (p. 122.)

The fruits here mentioned *Nephelium Litchi.* Camb and *Nephelium Longan*-Camb. The 美人李 *mei jin li* is evidently a Plum.

`8. Urbs Chang cheu (prov. Fo kien). In hujus ac superioris urbis (Ts'üan chou fu) territorio uberrime proveniunt *Poma aurea* nobilissima, mole ac magnitudine Europaeis majoribus paria, odore, suavitate atque amoenitate ea omnia longissimo superant intervallo; nec arboris figura aut modus a nostratibus multum discrepat, sed fere par est, fructus vero in eo differt, quod comestus uvam omnino referat, quam muschatam vocant, ejusdem enim plane odoris ac saporis est, adeo ut suavius quidquam in hoc genere nec Italia hactenus, nec Hispania viderit aut gustarit. Ita vero hic fructus a natura est comparatus ut aureum suum densioremque corticem facile dimittat, pulpa vero intra pelliculas, quibus vestitur ac distinguitur, eadem facilitate in particulas suas dividitur. Eundem fructum simul cum cortice inter asseres pressum saccaro condiunt, totoque anno adservant neque Sinas suos tantum, sed et exteros his deliciis pascunt ac recreant. (p. 125.)

Urbs Chang te. (prov. Hu quang). *Poma aurea* omnis generis profert, inter quae illa sunt quae hyberna a Sinis vocantur. Cum enim jam cessant reliqua, haec primum hyeme maturescunt et suavissimi sunt saporis. (p. 80.)

The first of the Orange here descibed is that known among European residents in China under the name of *Mandarin-orange*, the rind of which separates spontaneously from the pulp. The other may be the so-called *Coolie-orange* known by its closely adhering skin.

9. Provincia Quang tung. Poma aurea hic ac Citria omnis generis sunt, etiam praestantissima illa quae supra in prov. Fo kien descripsimus. Unum praeterea genus est particulare, *Yeu çu* Sinae vocant, Lusitani *Jamboa*, Hollandi *Pampelmoes*. In spinosis arboribus ut limonia poma solent nascuntur, arbores tamen illis majores sunt, flores etiam similes omnino albosque proferunt suavissimi odoris ex quibus aqua etiam fragrantissima destillatoria arte elicitur; fructus autem citria omnia etiam illa maxima longe superat magnitudine, quippe qui capitis humani molem aut aequet aut excedat. Cortex reliquis pomis aureis similis est colore, pulpa interna rubescit, dulcedinem aliqua aciditate permixtam obtinet uvamque sapore refert non omnino maturam, proptereaque ex eo etiam liquor pro potu exprimi solet, uti in Europa ex cerasis, pyris ac pomis pro sicera: suspensus domi fructus ad annum perdurat. (p. 131.)

This is the Citrus decumana. L. sin: 柚子 *yu tsz'*.

10. Urbs Chang te (prov. Hu quang). Habent etiam *Cedros* illas, quas *Idoli manum* vocant, extremitates enim illarum in candulas aliquas ceu in digitos ac pedunculos desinunt. Esui apti non sunt, at domi intra cubiculum suspensi suavissimum exhalant odorem, quam obrem sacculos reticulato opere ex serico artificiose contexunt. (p. 80.)

Citrus medica, var. chirocarpa. Lour. sin: 佛手 *fo shou* (Buddha's hand.)

11. Urbs Kiun cheu in insula Hai nan. Crescunt hic ubique *Nuces Indicae majores* ac *minores*, fructusque ille vulgo habitus totius orbis maximus, quem *Jaca* in India vocare solemus, qui ob eximiam magnitudinem non in ramis arborum, quamvis illi quoque ingentes sint, sed ipsi trunco adnascitur, quasi ex metu, ne tantum onus rami ferre detrectent quantumvis firmi aut robusti fuerint. Fructu cortex adeo durus crassusque est, ut securi aperiendus sit. Innumerae intus domunculae seu folliculi sunt, in quibus pulpa est flavi coloris, quae nucem veluti castaneam ambit; illa ubi maturuit suavissima est; haec igne tostas castaneas nostrates refert. (p. 140)

1. Cocos nucifera L.—2. Areca catechu. L.—3. Artocarpus integrifolius L.

12. Prov. Quang tung. Fructus quoque hic ubique plurimi sunt et praestantissimi, Europaei non pauci: *Poma granata. Uvae, Pyra, Nuces, Castaneae*, at hisce terris proprii ac singulares: *Musae, Nuces indicae, Ananas, Lichia, Lung yen, Poma aurea* etc. (p. 131.)

13. Urbs Gu cheu (Martini means Wu chou fu in Kuang si.) Nascitur arbor *Quang lang* vocata, haec pro medulla mollem pulpam obtinet farinae simillimam, quin et farinae usum praestat, saporisque non ingrati est, ad quaevis esculenta adhibetur. (p. 145.)

Sin: 光榔 *kuang lang*. Caryota.

14. Urbs Kia hing (prov. Che kiang). Nascitur per totam hanc regionem in stagnantibus aquis fructus figura rotundus, *Peci* Sinae vocant, cujus magnitudo castaneam nucem haud multum excedit, pellis subtilissima pulli coloris nucleum vestit, cujus intus candidissima caro est plena succi, gratique saporis, durior est quam pomorum vulgarium, ac parumper acida. Si simul cum hoc fructu cupream monetam ori immiseris, dentibus eadem facilitate qua fructum comminues, ac in pulpam comestibilem rediges, mira naturae vi, mihique alias ipso experimento saepe comperta. (p. 118.)

This is Eleocharis tuberosa. Schult. sin: 葧臍 *pi ts'i* cultivated throughout China.

15. Urbs Xun te (Shun te fu, prov. Chili). *Tulo* lacus magnus fructu aquatico *Lin kio* dicto celebris. Hic fructus tribuli fere habet figuram, ad instar triangularis pyramidis undequaque prominens, cortice viridi crassiorique est, ad apices rubescente, dum siccatur nigrescit, interior substantia albissima est, sapore castaneae nucis, magnitudine tres quatuorve castaneas aequat. In stagnantibus aquis per totam Sinam seritur. Planta foliis est exilibus longissimo tractu per aquas

summam superficiem proserpentibus, fructus multiplices sub aquis latitant. (p. 34.)

Trapa bispinosa. Roxb., extensively cultivated in the lakes and rivers of Northern China. Sin: 菱角 *ling kio.*—The marsh of Ta *lu* 大陸澤 is situated in the southern part of Chili.

16. Prov. Kiang si. On p. 87 Martini gives a detailed description of the *Lien*, a waterplant found in all parts of China. The roots and the seeds of it are eaten. This is **Nelumbium speciosum.** W. sin: 蓮. *lien*.

17. Prov. Quang tung. Non tamen hic praetereunda *Rosa sinica* est, illa nimirum, quae diebus singulis bis colorem mutat, purpureaque modo tota, modo rursus omnino alba evadit. Caret suavitate odoris, in arbore nascitur. (p. 132.)

Hibiscus mutabilis. L.

18. Urbs Iengan (Yen an fu in Shensi). Florem profert *Moutan* dictum maximeque estimatum a Sinis, quasi florum regem diceres, rosa nostrate major est, hujus tamen figuram imitatur, sed folia magis expandit, odore quidem cedit, at pulchritudine superat, spinis caret, coloris est magis albicantis quasi ex purpureo et albo misti. Rubri etiam et flavi reperiuntur. In virgulto nascitur Sambuco nostrati haud absimili. Per totam Sinam hic flos in divitum viridariis colitur, idque magna arte et diligentia in calidioribus quippe locis aestate contra solis ardores regi debet. (p. 51.)

According to Chinese authors the 牡丹 *mu tan*, or **Paeonia moutan** Sims., is found in a wild state in the mountains of the southwestern part of Shensi. Martini is the first European who notices this handsome Chinese flower introduced into European gardens only in 1789.

19. Urbs Kin hoa (prov. Che kiang.). Nascitur hic flos ille quem in India Lusitani *Mogorin* vocant. (Latinum illius nomen nusquam reperio.). In parva nascitur arbuscula, flos albissimus Gensemino non absimilis nisi quod plura habet folia. Odorem exhalat suavissimum Gensemino multo nobiliorem. Est apud Sinas in magna aestimatione. (p. 114.)

This is **Jasminum Sambac.** Ait., the 茉莉花 *mo li hua* of the Chinese.

20. Urbs Quei lin (prov. Quang si). Maxima ex parte nomen habet a *Quei* floribus, qui licet per totam reperiantur regionem Sinarum, nullibi tamen copiosiores sunt quam in hac provincia, maximeque in hujus urbis territorio unde urbi Queilin nomen inditum, quod Quei florum sylvam sonat. Nascitur autem Quei flos in procera arbore, quae folia habet lauri, aut Cinnamomi. Flos minimus est, ac flavi coloris, in racemulos dispergitur, suavissimi plane odoris; flos apertus in ipsa

arbore longo admodum tempore perstat integer, minimeque flaccescit, ubi decidit, interjecto mensis unius spatio denuo arbor repullulat, novumque florem gignit autumnali tempore; tam fragrantem gratumque exhalat odorem, ut regionem totam cui arbor vicina est, a suavitate recreet atque perfundat. Latinum illius nomen nusquam reperio: is ipse autem flos est, quem Turcae limonum succo maceratum ad crines equorum tingendos adhibent. Ex eodem Sinae multa bellaria ori ac naribus gratissima adornant. (p. 143.)

The tree here described is the 桂 花 *kui hua* of the Chinese, the Olea fragrans Thb. of botanists. M. is wrong in supposing it to be the *Henna* of the Mohammedans, which is *Lawsonia alba* Lam., also cultivated in Southern China.

21. Urbs Cin cheu (prov. Quang si). *Cinnamomum* profert praestantissimum, a Ceilani cinnamomo in eo tantum differt quod odoris sit fragrantioris, majorisque mordacitatis, dum linguae imponitur. (p 146.)

Cinnamomum Cassia Bl., C Burmanni Bl. and perhaps other species furnish the Cassia bark of China.—By Cin cheu M. means 潯 州 府 *Sin chou fu*. In the same prefecture near the town of Tai wu, according to Mr. Moss (Narrative of an exploration of the West river. 1870.) the best Cassia bark is produced.

22.- Provincia Iun nan (Yun nan). Mo pang munimentum maxime australem ac occidentalem hujus provinciae partem occupat. *Piper* profert. (p. 165.)

23. Provincia Kiang nan. *Cha* folium (p. 106). A good description of the *Tea* plant, its cultivation, preparation of the leaves etc. The best quality is said to be that of *Sung lo*.—On p. 138 M. notices the tea of the prefecture of Ta li in Yün nan.

I have omitted Martini's treatise on tea (茶 *cha* in Chinese) for the subject is too well known and M. not the first European who mentions tea. The 松 蘿 *sung lo* mountains separating the provinces of Che kiang and An hui, are still famed for their superior quality of tea.

24. The province of Kiang nan (Kiang su and An hui) famed for its *Cotton* and manufacture of cotton cloths, especially the cities of Sung kiang and Shanghai. (p. 94. 101. I omit the details.)

25. Urbs Nan kang (prov. Kiang si). Producit haec urbs *Cannabim* ex qua vestes aestivas contra calorem ac sudorem aptissimas texunt. (p. 88.)—Urbs Xao (Shao) wu (prov. Fo kien). Texit hujus urbis plebs pannos praestantissimos ex crudo Cannabe, qui aestati tempore ob frigiditatem et quia sudore

madefacti non sordescunt, citoque siccantur, vulgo expetuntur et in pretio sunt. (p. 128.)

Boehmeria nivea. Hook. et Arn., from the fibre of which the so called Chinese *Grasscloth* is manufactured.

26. Urbs Li ping (prov. Quei cheu). Pannos conficiunt incolae ex cruda Cannabe, seu herba Cannabi prorsus simili. *Co* Sinae vocant. Ex his vestes pro tempore aestivo eximiae plane sunt, ac commodissimae. (p. 152.)

Pueraria Thunbergiana Benth. (Pachyrhisus Thunbergianus S et Z.) Sin: 葛 *Ko. F. trilobus* D.C. has the same Chinese name. It seems that both of them are textile plants.

27. Urbs Ping lo. (prov. Quang si) Conficitur hic pannus ex foliis *Musarum rubrarum.* (p. 145.)

In the Yi t'ung chi, the great geography of the Ch. Empire, the 紅蕉布 *hung tsiao pu* (cloth made from the red Musa.) is mentioned as manufactured in the prefecture of Ping lo. Perhaps the **Musa coccinea.** Andr., introduced into European gardens from China in 1792, is meant. I am not aware whether the appellation of red Musa could be applied to *Musa textilis* Nees.

28. Urbs Cin cheu (prov. Quang si). Incolae ex herba *Yu* conficiunt pannos, quorum praestantia sericum ipsum superat, majorique quam istud in pretium sunt. (p. 146.)

The plant *yu* and the fabric manufactured from its fibres seem to be unknown to Europeans. In the Yi t'ung chi I find under Sin chou fu (vide supra 21) a cloth mentioned there produced which they call 紵布 *chu pu* or 鬱林布 *yü lin pu.*

29. Provincia Xan tung (Shan tung). Rarum est, et omnino nimium quantum beneficae in eam gentem naturae argumentum, filum sericum ibidem in arboribus ac campis sponte sua nasci, quod non a domesticis bombycibus, sed a vermibus contexitur erucis haud absimilibus, non in globum aut ovum ductum, sed in longissimum filum paulatim ex ore emissum, albi coloris, quae arbusculis dumisque adhaerentia, atque a vento huc illucque agitata colliguntur, atque ex illis, uti ex vera bysso, panni conficiuntur serici qui licet rudiores nonnihil sint serico domestico, firmitate tamen ac robore superant. (p. 53.)

Martini alludes here to the wild silkworms feeding on the leaves of different *oaks* and producing the silk from which the so called Shan tung Pongee is woven (繭綢 *kien chou* in Chinese.) Comp. Dr. Hance's interesting article on Northern Chinese silk worm oaks, Journ. Linn. Soc. X. XIII. and Du Halde, la Chine II 207.

30. Martini explains (p. 39) the method adopted by the Chinese in the production of *Weeping Willows* by bending down large branches of the *lieu* or Willow tree, which generally has upright branches, and causing them to take root in the ground.

I may observe, that Salix babylonica L. in Europe and Western Asia is generally seen with its branches hanging down, whilst in China (in Northern China at least) where this tree, 柳樹 *liu shu* in Chinese, is very common, its branches shoot originally upwards. In a similar way the Chinese produce artificially the tree known in Europe as *Sophora pendula*, in causing two young trees of *S. japonica*. L., growing close together, to join by grafting, and then turning upwards the roots of one of them.

31. Urbs Chao king (prov. Quang tung). Multa odorifera ligna producit: *Aquilam* nimirum et illud quod Lusitani *Pao de Rosa* seu rosaceum vocant, quo ad capsulas, mensas, sedes, similiaque conficienda frequentissime utuntur, quoque vix aliud est praestantius, coloris ex nigro rubicantis, venis quibusdam intercisum et artificiosa benigne obstetricantis naturae quasi manu depictum. (p. 137.)

Urbs Kiun cheu in insula Hai nan. *Aquila lignum* crescit in montibus, uti et *Ebenum*, *lignum Rosae;* et illud quod *Brasilum* vulgo vocant, quod ad tincturam per totam Sinam passim adhibent fullones. (p. 140.)

With respect to Eaglewood and Rose wood compare Semedo 8, note. The Ebony of China is probably yielded by the tree described in Loureiro's Fl. cochin. under the name of Ebenoxylon verum, but it seems that after Loureiro no botanist has had opportunity of observing it.—Brasil wood is Caesalpinia Sappan. L. (Comp. Yule's M. Polo 2d edition II 360.)

32. Urbs Cin cheu (prov. Quang si). Ibidem *arbor* illa *ferri* est, buxo nostrate multo durior. (p. 146)—Urbs Chao king (prov. Quang tung). *Cao leang* mons prope *Te king* ex eo celebris, quod ingentes arbores, quae ferreas seu *lignum ferreum* vocant profert.

The mountain 高亮 *kao liang* in the district Te king chou. The tree producing the Chinese *Iron wood*, sin: 鐵梨木 *t'ie li mu* seems to be unknown to botanists. Comp. Loureiro Fl. cochin. 326. *Baryxylum rufum*. There are probably several trees going under the same Chinese name. I have myself seen in Canton a red and a grayish green wood, both of them termed tie li mu and extremely hard.

33. Urbs Chu cheu (prov. Che kiang). Luyeu (?) rivus prope King ning (景寧) magnis *Arundinarum* sylvis virescens. Sinae eas communi nomine *Cho* dicunt, licet quam plurimae earum sunt species, Lusitani in India *Bambu* vocant, aliae aliis majores sunt. Harum omnium durities prope ferrea est, adeoque saepe crassae sunt, ut duabus tribusve manibus stringere nequeas: quamvis autem intus vacuae sint, suisque nodis articulisque distinctae, firmissimae tamen sunt, ac securissime imposita onera sustinent, Altitudo saepe trium aut plurium cannarum est, minores aliae mediam perticam haud excedunt, aliae sunt trunco ac ligno viridi, aliae nigerrimo, atque hae plerumque

solidae quales in India Bambu marem vocant. Amoenissimum adspectum praebent tum folia oblonga forma gladioli, summitatibus nonnihil inflexis atque incurvis: tum quia toto anni tempore virides sunt. Licet autem adeo durae sint arundines facile tamen in licia tenuissima, ac veluti membranulas ab artis peritis dissecantur, ex quibus storeas, capsulas, pyxides, pectines aliaque simili utensilia minutissima subtilissime contexunt. Ex eisdem domos suas facile construunt eisque par aedium minorum postibus utuntur; ex tenuioribus hastilia fiunt cuspide praeferrata atque ad sexcentos alios usus, quorum nimis prolixa esset narratio adhibentur. Ad aquarum canales ductusve struendos, cum a natura perforatae sint, aptissimae sunt: ac pro tubis opticis longioribus ob levitatem, rectitudinem, crassitiem ac firmitatem excellentes prorsus ac singulares. Cum recens haec canna abscecta comburitur, aquam emittit, uti ligna omnia, plurimum a medicis expetitam: epota namque putrescentem sanguinem locoque motum vel casu, vel percussione, e corpore expellit. Tenera ac primum nata, priusquam folia emittat cum carne adhibetur pro cibo veluti rapae, aut cocti cardui, quin et aceto macerata toto anno servatur tamquam condimentum, seu obsonium ad delicias, non secus ac minores apud nos cucumeres, aut foeniculum. (p. 116.)

Urbs Hoai gan (prov. Kiang nan). Ad urbis orientum est Hung lacus (洪澤) et palus ingens. In eo nascuntur *Cannae* illae palustres altissimae, quibus lignorum locq tota utitur regio. (p. 104.)

Urbs Hoei cheu (prov. Quan tung). In monte *Lo fou* (羅浮山) longissimae *Arundines* nascuntur eaedem crassissimae, quae reliquas fere omnes superant, trunci circumferentia decem subinde aut plures palmos aequat aut etiam superat. (p. 136.)

竹 *chu* is the general term for Bamboo in Chinese. Munro in Transact. of Linn. Soc XXVI (1868) enumerates 12 species of *Bambusa*, known from China. It is not certain whether *B. arundinacea* Retz (Arundo Bambus L.) occurs in China.

34. Urbs Lui cheu (prov. Quang tung). In omnibus hisce terris vimen illud mirabile nascitur quod Sinae *Teng*, Lusitani *Rota* vocant, funem a natura contortum esse credas, in maximam enim longitudinem extenditur, ac veluti funis per terram ac montes prorepit; spinis horridum est, foliisque oblongioribus viret, crassitie vix digitum aequat, et tamen saepe ad integrum stadium diffunditur, tantaque per montes copia ut inter se intricatae stirpes etiam cervis iter impervium reddant. Lentissimum prorsus vimen est, maximeque fractioni resistit,

quamobrem ex eo rudentes, funesque pro navibus confieri solent; imo illud in licia vittulasque tenuissimas minutissime partiri solent, ex iisque corbes, crates, sedilia aliaque similia contexere, maxime vero subtilissimas ac molissimas illas storeas, in quibus Sinenses plerique ad ipsem Regem nudi, dum somnum capiunt, decumbere consueverunt, quae res mundissima est et aestate perfrigida, et Sinensibus, tametsi eae storeae vel nudis asseribus instratae sint, sat commoda videtur ob longam ita decumbendi assuetudinem. Ex iisdem viminibus ipsos lectulos efformant, ac pulvinaria, quae rebus quibusdam odoratis infarciunt ad delicias. (p. 139.) Vimen etiam seu Rotam tota insula Hainan profert. (p. 140.)

Calamus Rotang. L., **C. rudentum.** Lour., **C. verus.** W. C. **viminalis** W. and probably several other species, growing in India, the Archipelago and Cochinchina furnish the Rattans so commonly employed for different purposes. As to the species of Southern China they are very imperfectly known, but some of the above mentioned species may occur also in China. The Chinese character 藤 *t'eng* denotes not only Rattans, but is also applied to other climbing plants.

35. Urbs Nien cheu (M. means Yen chou fu, prov. Chekiang.) Plurimum colligitur Gummi illius seu glutinis *Cie*, quod stillat ex arboribus, persimileque est lachrymae terebinthi. Aestate colligitur, purgaturque a Sinis, et quo volunt colore inficitur: optimum est quod aureo flavescit, proximum quod nigerrimum. Cum nondum siccatum est, venenatam quandam emittit exhalationem, cui non adsueti intumescunt ac pallent vultu, sed facilis est curatio. Cum tinguntur arculae tardius siccatur, nisi in humido sit loco, semel autem exsiccatum numquam amplius liquefit. Quam vero res fit elegans munda ac splendida jam pridem didicit Europa ex capsulis quae e Japonia atque ipsa Sina plurimae fuerunt advectae (p. 113.)

漆 *ts'i*, the famous Chinese *Lacquer*, yielded by a species of *Rhus*. The plant however has not yet been examined by botanists, with the exception of Loureiro, who has named it *Augia sinensis*. See also above Semedo 17.

36. Urbs Kin hoa (prov. Chekiang). Quod mihi hic saepe admirationem movit pinguedo quaedam est ex arboribus nata, ex qua veluti ac sebo optimae atque albae fiunt candelae, quae manus non inficiunt etsi tangantur, nec foetorem exhalant dum extinguuntur. A Sinis *Kieu yeu* vocari solet. Arbor sat magna est, pyros nostrates et foliis et forma refert, florem album emittit, ut cerasi, florem excipit bacca rotunda omnino, ceraso mole aequalis; tegit hanc subniger et tenuis cortex, alba intus caro est, quae, cum bacca matura est, disrupto cortice apparet. Has baccas colligunt ac aqua calida excoquunt, tum caro liquefit, at frigida iterum omnino ut sebum solet, spissatur.

Nucleus dein remanet, hunc oleo plenum, ut olivas nos, macerant et oleum non ad cibos, sed ad lucernas aptum exprimunt. Hyberno tempore folia, quasi cuprea essent, omnino rubescunt; amoenus mihi horum foliorum saepe visus est conspectus, cum quasi integrae sylvae rubrae appareant: demum folia decidunt, et quia pinguedine quadam praedita sunt, gratissimum ovibus ac vaccis cibum praestant, ex quorum esitatione egregie pinguescunt. (p. 114.)

Martini's account of the *Tallow tree*, **Stillingia sebifera.** Mich., in Chin. 桕 *kiu* (the vegetable tallow is called *kiu yu*), is correct, with the exception of the description of the flowers. The tree is very common in Central and Southern China.

37. Urbs Tegan (prov. Hu quang). Est in hac regione rarum quid, *Alba Cera,* quae a vermiculis elaboratur eo fere artificio quo apes favos suos struunt. Sunt autem hi favi multo minores ac candidissimi, nec vermiculi culti sunt, aut domestici, sed inculti atque agrestes. Ex collectis favis candelas ut ex communi nostrate cera conficiunt, at longe magis albae sunt, a magnatibus, quod majori constent pretio, fere tantum adhiberi solent: nam praeter candorem odorem etiam suavem emittunt cum comburuntur, nihilque sordibus inficiunt aut foedant, licet guttae liquefactae in vestes incidant. Lumen etiam clarissimum, maximeque temperatum reddunt. (p. 76.)

Urbs Ping lo (prov. Quang si). In hujus urbis territorio reperitur *cera* illa *alba* ab animalculis illis insectis elaborata, de quibus supra dixi. (p. 145.)

This is it seems the earliest notice given by an European observer with respect to *Chinese Insect Wax* produced, as is well known now, by the *Coccus pela* Westw. living upon the branches of **Fraxinus chinensis** Roxb. and other species, and also on **Ligustrum lucidum** Ait. (See Hanbury's scient. pap. p. 60.)

38. On p. 108 and 88 of Martini's Atlas sinensis an account is found of the breeding of silkworms and the planting of *Mulberry trees* in the provinces of Chekiang and Fukien.

39. Urbs Iung ping (prov. Chi li). Magna ibi copia est nobilissimae radicis tota Sina celebratissimae *Ginseng*, Japonibus *Nisi*. Nomen sinicum illi a figura divaricatis quippe cruribus hominis formam refert (*gin* porro hominem significat.), Mandragoram nostratem credas, nisi quod ea multo minor sit, quin illius tamen species sit aliqua, nullus dubito, quippe quae et formam et vim habeat. Folia ejus mihi hactenus videre non contigit. Siccata radix flavescit, fibras seu capillos vix aut ne vix quidem habet. Cum manditur dulcedine ingrata est nonnulla admista amaritie, sed tenui. Auget plurimum vitales spiritus, suavem corporis calorem excitat. Fortioris calidiorisque

naturae qui sunt ejus sumptione vitae periculum adire solent nimium auctis exundantibusque spiritibus; debilibus, fatigatis, vel morbo diuturniori, aliave de causa exhaustis ad miraculum prodest. Moribundis ita vitales quandoque vires reddit. (p. 35).

Panax Ginseng, C.A. Mey., a plant now confined to Manchuria, not met with in the prefecture of Yung ping, as M. asserts. Yung ping fu is situated near the Manchurian frontier. It appears however from the ancient Chinese records that in former times Ginseng was gathered even in the mountains of North China. Comp. also Semedo ii.

40. Provincia Xensi (Shensi) multa praeclara suppeditat medicamenta, *Rheubarbarum* imprimis, quod non sylvestre est, ut putant quidam, sed diligenti culturae arte indiget. Sinae vulgo *Tai hoang* vocant. Radix est sat solida, tuberibus hinc inde prominentibus, foliorum forma haud ita procul abest a caulibus nostratibus, quos tamen magnitudine superant. Radices uno pertusas foramine in umbra suspendunt at siccant: nam in sole suspensae vim amittunt. Ex hac et Suchuen altera provincia, est magna ex parte Rheubarbarum, quod ad nos in Europam defertur, nimirum per mare indicum vel Cascar, Astracaniam et Russiam vel per Tebet, Mogor et Persidem: nemo enim est magnopere rerum peritus (quod equidem sciam) qui in illis regionibus nasci Rheubarbarum velit, sed inde nos habere asserunt, quia ab illis affertur emiturque nationibus, et ex Sina allatum esse ignoratur (p. 43. 45).

M. is correct in stating, that Rhubarb in its native country is cultivated. Przewalsky reports the same. But it seems that the greater part of the drug collected for sale grows wild in the mountains of Si ning fu and those surrounding lake Kukonor. Comp. also above Semedo 10, note.—There is in Kircher's China illustrata (French ed. 1667) p. 249 an engraving representing the "Rheubarbarum verum." Kircher states, that this drawing has been made from a plant grown in the garden of Mr. Juste Nobelar in Leyden at the time when Father Martini, in June 1654 passed through this city. He then had declared, that it was the true Rhubarb of China. But at the time here spoken of *Rh. rhaponticum* L. was the only Rhubarb known and cultivated in European gardens, and Kircher's drawing seems indeed to represent this species.—Dapper in his Description of China 1670 (see further on) gives a good drawing of a Rhubarb plant, which he terms *Rhabarbarum Witsoniarum*. I know nothing about this name, but the plant represented seems also to be Rh. rhaponticum.—The Chinese name of Rhubarb is 太 黃 *t'ai huang*.

41. Prov. Su chuen. Vera *Radix Sina* in hac provincia sola reperitur, sylvestris ubique, *Folin* utramque Sinae vocant, ac fere sola sylvestris ad nos affertur, cujus medulla rubicundiori colore quodammodo tincta est, ad verae autem magnitudinem non accedit, neque efficaces adeo habet vires, quamvis non omnino illius effectu careat. Vera autem uti dixi radix in hac sola nascitur provincia, idque sub ipsa terra, uti fere phalli

Hollandici (an ancient name for Phallus impudicus. L.) aut apud Indos Patatas nasci propagarique solent, maxime in annosis pinorum sylvis, und eam ex glutine seu pice pinea produci scribunt, quae in terram delapsa radices agat, atque herba fiat longo tractu per terrae superficiem serpens, continuoque tuberosas radices sub ipsa terra emittens subinde ad capitis puerilis magnitudinem, figura ac mole magnas nuces indicas, quas Cocos vocamus aequat, nec cortex colore abludit, quamvis non adeo durus crassusve sit, sed mollior omnino ac tenuior. Corticem replet nucleus seu caro alba ac spongiosa, hanc Sinae magni faciunt et in suis medicinis adhibent, tametsi cum hac carent, sylvestrem illam non respuant, at effectu non aeque bono. (p. 65.)

Martini's Radix Sina vera is a fungus which has been described under the botan. name Pachyma Cocos Fries. (Hanbury scient. pap 201, 267) in Chinese 茯 苓 *fu ling or* 白 | | *pe fu ling*, i.e. white *fu ling*; whilst his Rad. Sina sylvestris is to be referred to Smilax China L. and other species yielding the drug we call China root and the Chinese 土 | | *tu fu ling* i. e. common fu ling. Martini at first distinguishes the two plants but in the discription confounds them.

42. Urbs Hang cheu (prov. Che kiang). Ex monte Tien mo infinita vis *Fungorum* per totam Sinam defertur, quos sale conditos exsiccant (p. iii).

The 天 目 山 *T'ien mu* mountain is situated N. W. of Lin an hien.

43. Urbs Kiun cheu in insula Hainan. Est herba quam *Chi fung*, seu ostendentem ventum nominant. Nautae enim ex illa quo mense, et quot toto anno futurae sint tempestates, colligere se posse asserunt, idque ex nodulis seu geniculis ipsius; quo enim nodi pauciores sunt, eo pauciores illo anno futurae sunt tempestates, ex distantia autem nodorum a radice scire, aut colligere posse se autumnant, quo mense accidere tempestas debeat. (p. 140)

The plant 指 風 *chi feng* is noticed in the Chinese Botany Kuang kün fang p'u XCII fol. 24.

44, Urbs King chou (prov. Hu quang). Hic reperitur *Herba* quam *mille annorum* vocant quin et immortalem esse scribunt. Haec aqua macerata, ac epota albos crines in nigros commutat atque ad vitam producendam conducit. (p. 77.)

千 歲 藟 草 See the great geography Yi t'ung chi sub King chou.

45. Urbs Cung chang (prov. Xen si). Ad *Cin* civitatem in *Po chung* monte herbam nasci scribunt *Hoa co*, quae comesta steriles reddit. (p. 50.)

The Yi t'ung chi notices the plant 花 骨 *hua ku* on the mountain 嶓 冢 山 in 秦 州.

46. Urbs Ching yang (鄖陽, prov. Hu quang.) Stirps quaedam hic nascitur quae ut Hedera nostra in altum serpit, flores producit luteos et nonnihil albicantes. Extremitates ramorum subtilissimae sunt, velut fila serica: ajunt ramusculum nudae carni allegatum somnum suavissimum conciliare, ideoque *Mung hoa* dicitur i.e. somnii flos (p. 82.)

I have not been able to find the 夢花 *meng hua* noticed in Chinese works.

In the year 1656 a treatise was published at Vienna under the pretentious title of **FLORA SINENSIS**, the author of which was Father **MICHAEL BOYM**, a Pole, born in 1612. He left Europe as a Jesuit missionary for China in 1643, returned to Europe (Lisbon) in 1652, reembarked for China in 1656 and died in the province of Kuang si in 1659.

The original work of Boym's Flora sinensis published in Latin is a very rare book. I have seen it in the great Vienna library. It is issued in folio, Viennae Austriae, typis Matthaei Rictij, 75 pages with 23 engravings. Several prefaces, dedications and poetical essays occupy a considerable part of the book, which has no claim to research into Chinese botany, as the name of the treatise would seem to indicate. Boym gives an account of 22 plants, of which more than one half are rather plants of the Indian Archipelago. 21 of them are represented by tolerably well executed engravings and the Chinese characters added to the names. The Flora sinensis is followed by an account of some Chinese mammals, birds, reptiles etc with 2 engravings. The book concludes with an appendix on the Inscription of Si an fu. Boym's Flora sinensis has been translated into French by Bayer and appeared also in Thevenot's Relation des Voyages. 1696 sec. partie p. 15–30. The greater part of the engravings have been reproduced in Kircher's China illustrata and in Dapper's Description of China (see further on.)

I shall give in the following pages a list of the plants described by Boym, reproducing occasionally the original text or a part of it.

1. *Yay cu* 椰子. Palma persica et indica seu sinensis, vulgo **Coco** vel **Nux Indorum.** (no engraving.)

2. *Pim lam* 檳榔. Fructus **Areca** et **Bethel** folium. (no engraving.)

Drawings representing the Areca palm and Betel pepper are found in J. Bontius, Historia natur. et med. Indiae orient. (1629.) p. 90, 91.

3. *Fan yay xu* 反椰樹. Arbor *Pàpaya* in India dicitur, copiose in Sinarum Haynan insula progignitur nec non in Iunnam, Quamsy, Quamtum, Focien, australibus provinciis.

The first character in the Chinese name is evidently wrong. In the Chin. Botany *Chi wu ming shi t'u k'ao* XXXI, fol. 54, Carica Papaya L. is represented in a drawing and termed 番瓜樹 *fan kua shu* (foreign melon tree). A drawing of it is also found in Bontius l. c. 96.

4. *Pa cyao su* 芭蕉樹. *Ficus indica* et sinica. Integro anno fructus iste reperitur in Indiis et apud Sinas in regnis australibus. In Brasilia fructus vocatur **Banana.**

5. *Kia giu* (seu *Ka giu*) *su* 檟枷樹. Fructus indicus, apud Sinas non reperitur, verum in regnis quae Sinarum olim fuerant abundanter provenit et crediderim allatum in Iunnam et Quamsi posse produci. Arbor est magna foliis pulcherrimis et semper virentibus. Fructus imitatur pomum flavum vel rubicundum, ubi maturescit odoriferum, verum pomi succus agrestis est, et caro si comedatur guttur mordet. Fructus nullum semen habet, sed in vertice illius ad instar nuclei prominet, quem cortex glaucus, albam carnem et solidam recondens, instar castaneae vel amygdalae nucis cooperit, saporem earumdem si elixetur referens. Indi et Lusitani nucleis dictis loco amygdalarum utuntur.

The above description and the accompanying drawing of the fruit leave no doubt that Anacardium occidentale L. is meant. The Chinese characters render, it seems, the Indian name of it, being *Caju* (Watson names of Indian plants etc.). Comp. also Loureiro 304, Bontius l.c. 198.

6. 7. *Lici* 荔枝 et *Lum yen* 龍眼 fructus. **Nephelium Litschi.** Camb and **N. Longan.** Camb. (V. supra Martini 7.)

8. *Giambo* 瞻波. Fructus duplicem habet speciem, nam et rubri et albi coloris in India, subflavi rosarum fragrantium redolens odore in Malacca, Macao et Sinarum insula Hiam-xan reperitur. Prior species florem purpureum, posterior alboflavum habet. Folia pulcherrima laevia ac uno palmo longa triumque digitorum lata. Frutus ipse magnus plane sicut pomum, frigidissimae qualitatis.

Boym describes two species of the Rose-Apple, *Jambu* in India, viz: Eugenia malaccensis. L. (purple flowers) and E. Jambos. L. (yellowish white flowers). The fruit is well represented by the drawing.—The island Hiang shan is situated north of Macao. E. Jambos is naturalised in Hongkong (Bth. fl. hong. 120.)

9. *Fan po lo mie* 反波羅密. **Ananas** fructus in australibus regnis Quamtum, Quamsi, Iunnam, Focien et insula Hainan provenit abunde. Ad Indias orientales ex Brasilia dicitur fuisse apportatus.

The first Chinese character is again wrong and is to be read 番 on (foreign).

10. *Manco* (Chinese characters illegible). In australibus terris producitur uberrime.

A good description and drawing of Mangifera indica. L. Compare also Bontius l.c. 95.

11. *Pi pa* 枇杷.

Eriobotrya japonica Lindl.

12. *Cieu ko* 臭果 seu *Goyava* fructus. In provinciis australibus apud Sinas.

The Chinese characters mean: stinking fruit. Indeed the scent of the fruit of Psidium Guyava L. when too ripe is unpleasantly powerful. According to Dr. Williams in Bridgm. Chrest. 443 (18) the Chinese name of the Goava is 雞屎果 *Ki shi kuo*, meaning: fowls dung fruit. Under the latter name it is represented in the *Chi wu ming* etc. XXXI 40.

13. *Po lo mie* 波羅蜜 seu *Giaca* ab Indis dictus fructus.

Artocarpus integrifolia. L. Jack fruit. Compare above Martini ii. The Chinese name *po lo mi*, under which it is also represented in the *Chi wu ming*, XXXI 44. is apparently a transcription of the Sanscrit *paramita* (excellence).

14. 柿餅 *Su pim*. Fructus sinicus. Arbor et fructus apud Sinas tantum nascitur, est aurei et purpurei coloris magnus, pomum excedit, carnem mollem ac rubeam cum simili pelliccula refert, ossicula hinc inde interius abscondit. Cum siccatur ficubus Europaeis simillimus est et per multos annos conservatur. In Quamtum et Fokien regionibus Januario, Februario, sed in Xensi et Honan aliisque septentrionalibus Junio, Julio et Augusto maturescit.

Diospyros Kaki, L. v. supra Semedo 4. The Chinese name given by Boym properly denotes the dried fruit, for the second character means cake.

15. *Ya ta xu* 亞大樹. Fructus *ya ta* in Indiis et popotissimum agro Malacensi reperitur, qui Sinis olim tributum pendebat, ideoque sinicus fructus optime dici potest et quod etiam in sinense solum translatus uberrime germinet. Viridem corticem et piniferum habet, sed interius carnem liquidam nivis ad instar albam, sapore superat dulciarium, quod Lusitani appellant mangiar reale. In multis cellulis ossicula nigra solida recludit. Alicubi Octobre et Novembre, alicubi Februario et Martio mensibus maturescit.

The drawing given by Boym of this fruit represents Anona squamosa L. By *ya ta* (*a ta* in the Southern dialect) the Singhalese name of it, being *atta* (Watson l.c.), is rendered. At Canton the Chinese call it *fan li chi*, foreign Li chi (Bridg. l.c. 443 (10).

16. *Du li am* 土利? Fructus hic in Java, Malaca, Macaca (vulgo Celebe.) et Siam regnis ac insulis olim tributariis Sinarum reperitur. Caro illius alba. Sicca caro fructus instar lactis coagulati in alias partes deportatur venalis, quae nucleum interius ad modum albuminis ovi cooperit.

This is the famed *Durian*, Durio Zibethinus. L. a tree of the Indian Archipelago and Siam. I do not think that it is cultivated in Macao as Grosier (la Chine II. 539.) reports. It seems to me that Grosier, who

refers to Boym; took Macaca mentioned by the latter to be Macao. But Macacas is an ancient name for Macassar (Crawfurd Dict. Ind. isl. 90.). Bontius l. c. 118 seems to confound the Durian with the Jack fruit, at least he gives Durian and Jaca as synonyms. His drawing of the fruit could be referred to the Jack as well as to the Durian, it does not represent leaves.

17. *Innominatus Fructus*. Illius nominis sinici non memini. Vidi illum primum in insula Hainan et postea in provincia Quamtum. Arbor procera, folia maxima, quae medium hominem contegere possunt, producit. Hoc admirabile habet, quod media radice telluri inhereat, ex alia autem parte radicis patente flores rubros et simul fructus, similes Europaeis ficubus progenerat, qui cum maturescunt, rubent paululum; sed interior caro et sapor illorum figuram et saporem ficuum repraesentat. Julio et Augusto maturescunt.

It would seem from this description and the drawing accompanying it, that Cynometra cauliflora L. is meant, a tree of the Malayan Archipelago, which I have seen myself in Java. The fruits of it grow on the stem or about the roots.

18. *Hu cyao* 胡 椒 **Piper nigrum.** L. (v. supra Martini 22.)
19. *Fo lim* 茯 苓 **Radix Sinae** (v. supra Martini 41.)
20. *Tay hoam* 太 黃 **Rhabarbarum** (v. s. Martini 40.)
21. *Quei pi* 桂 皮 **Cinnamomum** (v. s. Martini 21.)
22. *Sem kiam* 生 薑 **Zingiber.**

A good drawing of Chinese Ginger is found also in Bontius l.c. 189.

As the late D. Hanbury has proved in the introduction to his Notes on Chin. Materia medica, the treatise, which is generally quoted under the name of **CLEYER'S SPECIMEN MEDICINAE SINICAE**, published in 1682, consists of translations from Chinese medical works by Father *Boym*. They were only edited by *Andreas Cleyer*, a physician in the service of the Dutch E.I. Comp., well known as the first European botanist, who studied the Flora of Japan. One section of the specimen medicinae sin. of 30 pages, is entitled: *Medicamenta simplicia quae a Chinensibus ad usum medicum adhibentur*. It is nothing more than an enumeration of 289 Chinese drugs, for the most part of vegetable origin, giving the Chinese name of each written according to the Portuguese orthography, without the Chinese characters. The medical properties of each drug according to the Chinese ideas, are explained. In some cases the author adds the European name. Although the greatest part of these drugs can now be ascertained from the Chinese names added, the treatise is altogether devoid of interest and may be quoted only as a bibliographical curiosity.

In the same year, 1655, when Martini's Novus Atlas Sinensis was published in Europe, the Dutch E. I. Company sent an embassy to Peking and appointed *Goyer* and *Keyser*, two merchants of Batavia, as envoys. **J. NIEUHOF,** who accompanied them as steward of the mission, published ten years later a work under the title: **LEGATIO BATAVICA AD MAGNUM TARTARIAE CHAMUM SUNG TEIUM,[*] SINAE IMPERATOREM.** Amst. 1665. It is illustrated by a great number of engravings representing views, plants, animals and other things relating to China, and has been translated into several European languages. This book may well stand as a model of the most impudent plagiarism and imposture in the literature of travels in the 17th century. As N. quotes no previous books on China, the reader cannot but suppose that all the rich information he furnishes with respect to that Empire, had been gathered by himself in China. But in reality it is only the diary of the embassy's journey from Canton to Peking, partly by land and partly by river and the Grand Canal, which N. can claim as his property, and there is nothing in it to boast of, for the whole narrative abounds in errors and intentional misrepresentations. As far as I can judge the drawings in this work, representing Chinese scenery, are all pure creations of fancy. The cities and villages of North China, through which they passed, appear there as overshadowed by lofty Cocoanut trees, and even Peking, of which a large view is given, with the great wall close behind the city, has not been exempted by the artist in this respect. As to the rest of the accounts found in this work, they are a reproduction of Martini's valuable Atlas sinensis, and that is precisely the case regarding the chapter dealing with Chinese plants, animals, etc. The engravings representing plants have been borrowed from Bontius and Boym. Some of them seem to be the production of the artist's imagination.

In 1670 Dr. **DAPPER,** published in Dutch a **DESCRIPTION OF THE CHINESE EMPIRE,** appended to his narratives of the second and the third Dutch embassy to the Chinese Court, in 1662 and 1666–1668. This is also nothing more than a translation of the Atlas sinensis, often misunderstood, undigested and indigestible. Nearly twenty pages in it are devoted to the Botany of China. The greater part of the drawings of Boym's Flora sinensis are here reproduced and, of course, no sources are adduced.

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[*] Emperor *Shun chi* 1644-62.

There is another well known ancient work on China, **KIRCHER'S CHINA ILLUSTRATA**, published in 1667. This has also little claim to originality. The author, who had never been in China, draws from Martini (who had been his pupil,) Boym, and the writings of other missionaries, but he quotes honestly his sources and compiles with criticism, displaying a great knowledge of the subject he treats of. *Athanasius Kircher*, a German, born in 1601+1680, was also a Jesuit, at first Professor at Würzburg; he subsequently resided in Avignon and in Rome.

After Boym the next Jesuit missionary in China I have to notice as a writer on matters of natural science is **GABRIEL DE MAGALHAES**, a Portuguese. He was born in 1609, arrived in China in 1640, died at Peking in 1677. He is the author of a work entitled: **NOUVELLE RELATION DE LA CHINE.** The original M.S. was in Portuguese. It was translated into French and published in 1668. On p. 173 we find an interesting account of the Chinese White Wax, *pe la* (白 蠟), produced by insects in the provinces of Shan tung and Hu kuang, and of the trees on which these insects use to live. Compare above Martini 37.

Some remarks on Chinese plants are found also in **LE COMTE'S NOUVEAUX MEMOIRES SUR L'ETAT DE LA CHINE.** Paris 1696. 2 vol.

Louis Le Comte, a Frenchman, born in 1655, joined the Jesuit mission in China in 1687. He died in Bordeaux, in 1729.

1. We learn from Le Comte (I. 173.) that the first *Orange* tree, which had been introduced by the Portuguese from China, then (i.e. at the end of the 17th cent.) still existed in the garden of Count St. Laurent in Lisbon.

It is known, that the sweet Orange, now extensively cultivated in Southern Europe, was unknown there before the middle of the 16th cent., when it was introduced by *Juan de Castro*. It is in allusion to its Chinese origin, that the orange in Dutch is styled *Sinaas appel*, and *Apfelsine* in German.

2. Le Comte saw in the province of Shensi a kind of small yellow *Melon*, which the Chinese eat, without peeling off the skin. He notices also Melons the same in size as those cultivated in Europe and large *Watermelons* with red or white pulp (I. 132.)

An excellent globular Melon of the size of a small fist with a thin skin is also seen in Peking and known there under the name of 甜 瓜 *t'ien kua* or 香 瓜 *hiang kua*: The peel is yellow, or in another variety green. Loureiro, Fl. cochin. 726, speaks of Melons of large size in Southern China. I have not seen large Melons in Peking.

3. A good description of the *Tea plant*, its culture, etc., in the Province of Fokien is found I. 368. The author explains that the Chinese call the plant properly *Cha*, and that only in the dialect of Fokien the name sounds *Te*.

4. Le Comte reports that *Tobacco* is cultivated near Peking and in the provinces of Shansi, Shensi, Ss'ch'uan. (I. 168.)

Le Comte seems to be the first European, who notices Tobacco in China. It is now a well established fact, that Tobacco was first introduced into China through the seaports of Fukien at the end of the 16th or the beginning of the 17th cent.

5. Le Comte speaks (I. 178) of a peculiar Chinese *Onion* in the following terms: J'y ai vu une espèce d'oignon qui ne vient point de graine comme ceux d'Europe, mais à la fin de la saison on voit sortir de petits filamens sur la pointe ou sur la tige des feuilles, au milieu desquelles se forme un oignon blanc semblable à celui qui germe dans la terre. Ce petit oignon pousse avec le temps des feuilles comme celles qui le soutiennent, lesquelles à leur tour portent un troisième oignon sur leur pointe, de manière néanmoins que leur grosseur et leur hauteur diminuent à mesure qu'ils s'éloignent de la terre.

This seems to be the same onion as that described under the name of 樓子葱 *lou ts' ts'ung* (onion growing in stories) in the 救荒本草 *kiu huang pen ts'ao*, published at the end of the 14th cent; a good drawing of it is also given there. The description states that at the top of the leaves grow from 4 to 5 little onions and on these again other onions are produced constituting thus from 3 to 4 stories. These onion plants do not bear seeds.—We have here probably to do with a so-called viviparous variety of an Onion. *Allium Cepa*, *A. scorodoprasum* and other species show sometimes the peculiarity of their flowerstems being surmounted by small bulbs, instead of bearing flowers and seeds. These bulbs produce new plants.

6. The *black* and *yellow Peas*, to which Le C. refers (I. 168) as used in North China for feeding horses, are: the yellow, **Soja hispida** Moench. *(Glycine Soja)*, the black, a variety of it.

7. Le C. speaking of the *Pesi* (**Eleocharis tuberosa.** Schult. v. supra Martini 14.) refers to Martini's statement, that when chewed together with a copper coin, the latter is easily bruised by the teeth, a story we met also in Chinese books. But Le C. refutes this assertion, appealing to his own experience. (I. 179.)

8. The tree is described which yields the *Chinese Pepper* or *hoa tsiao*. (I. 177.)

Several species of **Zanthoxylon** are included under the name of 花椒 *hua tsiao* in China. In Peking this name is applied to Z. *Bungei*. Planch.

9. Description of the tree *ou tom chu*, a large tree of the appearance of the Sycamore. It has large leaves with long leafstalks, the seeds of it are produced on the edges of leaves, different however in shape from the true leaves. (I. 268). There is also a good drawing of this tree.

This is Sterculia platanifolia. Cav. a common tree in China, sin: 梧桐樹 *wu t'ung shu*. Its carpel opens into green follicles indeed much resembling leaves, with the seeds attached to the edges of the follicles.

10. Le C. states that besides Cotton, the Chinese use to wear in summer clothes made from *Nettles* and another kind, they call *Co pou*, which is much esteemed by them. The latter is obtained in Fokien from a plant called *Co*, a shrub-like creeper, which they allow to grow over the fields, often extremely long. It has roundish leaves larger than those of the Ivy. They are soft, green on the upper side but covered on the under side with a coating of white down. The stem attains the thickness of a finger. To obtain the textile fibres they soak the stems in water, as we do in preparing flax, and after having removed the outer skin, they use the fibres of the inner bark for making linen, which is very fine, transparent and cool. (I. 242.)

Pueraria Thunbergiana. Benth. already noticed by Martini (v. supra M. 26). 葛 *ko* in Chinese.

11. Le C. devotes also some pages to the celebrated *Ginseng*, describing the plant and the mode of its use as a medicine (I. 377).

A great amount of useful information with respect to China is stored up in the LETTRES ÉDIFIANTES ET CURIEUSES ÉCRITES DES MISSIONS ÉTRANGÈRES, a collection of letters written by the ancient Jesuit missionaries to their superiors or friends in Europe. There are several editions of this collection. The most convenient for reference is that published in the *Panthéon littéraire*, of which the letters received from the Chinese and Indo-Chinese Missions constitute vol. III and IV.

The following names of Jesuit missionaries appear there in connection with reports on botanical matters in China.

JOANNES LAUREATI, an Italian, born 1666, joined the Chinese mission 1697, died 1727 at sea.

He wrote a letter, dated Fokien, July 26, 1714, to the Baron of Zea, in which he gives some accounts of the vegetable productions of China, especially of *Tea*. (Panth. lit. III. 225.)

In the same letter he notices, that the Chinese use the fibres of a *Nettle* for making clothes and speaks also of *Tobacco* which in the beginning of the 18th cent. was largely cultivated in Fukien. (l.c. 228.)

FRANCIS XAVIER D'ENTRECOLLES, a Frenchman, born 1662, joined the Chinese mission 1698, + in Peking 1741. Many interesting notes on China from his pen have been preserved. The following relate to Chinese plants:

Letter to Father Du Halde, dated Peking 7 Jul. 1727 (l.c. III 544.) This letter contains an interesting treatise on the manufacture by the Chinese of artificial flowers made from the marrow of a Chinese plant, called *tong tsao*, of which the author gives a description translated from a Chinese work.

This is the 通草 *t'ung ts'ao* of the Chinese, a plant which is not only used in making artificial flowers, but is also the source of the *Rice paper*, erroneously so called. It was only in 1852 that European botanists became acquainted with this plant, a native of Formosa. Sir W. Hooker described it in his Journ. of Bot., 1852 and 1853 as Aralia papyrifera. It has been introduced subsequently into many tropical countries. When I visited Java, in 1872, I saw it already, escaped from cultivation, growing luxuriantly in the forest surrounding the botanical garden of Tjibodas.

In the same letter (l.c. 547) d'Entr. says a few words on the large *Citron*, called *Fo shou* or Buddha's hand by the Chinese (v. supra Martini 10.)

In another letter, dated Peking 6 Oct. 1736 (l.c. III 718.) he treats of several other famed Chinese plants and begins first with some interesting and correct accounts of the tree and fruit, which the Chinese call *si tse* or *chi tse*. (**Diospyros Kaki** as has already been stated, v. supra Semedo 4, Boym 14.) He had observed the tree at Peking and sent also seeds of it to Paris. He states that the provinces of Shan tung, Ho-nan and Che-kiang are famed for their excellent sitse fruits, which are of various sizes, colors and shapes in different parts of China. They are generally of an orange or red color, but those of Chekiang are green even when ripe. Some varieties of this fruit have the appearance of two apples joined together or a fruit of two stories. The fruits on grafted trees are devoid of seeds.

The author here refers to the Peking variety of the Kaki, the largest in size, which near the basis of the fruit is provided with a circular depression and contains rarely seeds.

E. further states that the Chinese claim to graft successfully peachtrees on the sitse.

I have found the same statement in ancient Chinese works but cannot confirm it.

After this E. speaks of the *Lichi* fruits (v. supra Martini 7.) and then proceeds to describe a kind of *Acacia*, called *hoai shu* by the Chinese. Its fruit is used as medicine, the flowers for dying yellow.

This is the **Sophora japonica**. L., a very common tree all over China, sin: 槐樹 *huai shu*.

E. next translates from a Chinese book some notes with respect to *Willows*, explaining the use of willow wool instead of cotton.

The author means **Salix babylonica**. L., also a very common tree in China. This reminds me of a statement of Professor Bunge, who, in his Enum. plant. Chinae bor., writes that the female tree of S. babylonica is very rare at Peking. This is an error. The female tree is met here much more frequently than the male and in May or June, when the willow seeds ripen, the air in the neighborhood of some places, where the trees abound, is full of this white wool (cottony down, which envelopes the seeds.) and d'Entrecolles reports the same. If I am not mistaken, in Europe the female tree only of S. babylonica is known. At Peking both male and female are met with.

In the same letter (l.c. 721) E. recommends, on the authority of Chinese authors, the roots of the *Belvédère*, *sao tcheou ts'ao*, termed *kiue* in Chinese books, as substitute for food in times of famine.

The author commits an error. What the French call Belvédère is *Kochia scoparia*. Schrad., a salsolaceous plant in North China as common as in Europe. The Pen tsao kang mu, XVI. 44. calls it 地膚子 *ti fu tsz'* or 掃帚草 *sao chou ts'ao* (meaning broom plant.) But the 蕨 *küe* (Pen tsao XXVII. 25.) is not the same, this name being applied to a Fern, *Pteris aquilina*. L., the farinaceous rhizoms of which are used in China as food as is also the case in some parts of Europe.

Finally (l.c. 722) E. gives an account of the Chinese *Camphor tree* and the method used by the Chinese to obtain Camphor from it.

DOMINICUS PARENNIN, a Frenchman, born 1665, came to China 1698, + in Peking, 1741.

In 1723 Parennin sent a few Chinese drugs to the Academy of Sciences in Paris, furnishing some explanatory remarks on them in an accompanying letter. (l.c. III 341.)

The first of these drugs he calls *hia tsao tum chom*, meaning as he explains: a plant in summer, and in winter an insect. It is produced in Tibet and also in the province of Sz' ch'uan, and considered among the Chinese a very powerful medicine. The Father had himself experienced the medical virtues of this drug.

It is known now, that the drug in question is a Fungus, **Cordyceps sinensis**, which grows upon the head of a caterpillar.

The plant next described, the *san tsi*, is said to grow in the mountains of the provinces of Yün nan, Kui chou and Sz' ch'uan. This is still unknown to botanists. The plant 三七 *san ts'i* is treated of in the Pen ts'ao XII b. 41. The name means: three and seven, and is explained by the distribution of the leaves.

After this P. gives some account of *Rhubarb*, and concludes by noticing an aromatic root, called *tam coue*, brought from Sz' ch'uan and much valued by the Chinese.

This is, it seems, the 當歸 *tang kui* of the Pen ts'ao, XIV. a 1. which is referred by Tatarinov with ? to *Radix Levistici chinensis*. I do not find this name in D.C. Prodr. It seems, that the Chinese plant yielding the drug tang kui is unknown to botanists.

In the same letter (l.c. III 345.) P. states, that during 18 years he had accompanied the Emperor Kanghi on all his frequent travels. As is known, Kanghi was an enthusiastic sportsman. His hunting expeditions were generally directed to Southern Mongolia and Manchuria. There were also other missionaries, who were associated with Parennin in these excursions. He mentions especially Dr. *Bourghese* and *Baudin*. The latter, a clever apothecary and botanist, had been ordered by Kanghi to search in the mountains for Gentian and Imperatoria (Masterwort.) in order to prepare the celebrated Theriaca Andromachi. But Baudin did not succeed in finding these plants.

There is no Masterwort in North China or in Southern Mongolia, but as to *Gentiana*, there are 5 species of it growing in the Peking mountains, some of them even employed as medicine by the Chinese. The Chinese name for Gentiana is 龍膽草 *lung tan ts'ao* (dragon's gall plant.)

P. gives finally in the same letter a slight sketch of the botany of the mountains of Southern Mongolia. Among the trees and shrubs there he mentions *Oaks* of a dwarf size, *Pines*, the *Aspen*, *Elm trees*, *Hazelnuts*, wild *Roses*.

The Tartars and Mongols, who inhabit these regions, do not cultivate any fruit. There are also very few wild fruits. Two of them are worthy of notice.

The fruit *oulana*, as the Tartars call it, is of the size of a great red cherry and is produced on a little stem, 3 or 4 inches high. The other fruit has the appearance of small raisins. It is produced in clusters on a fine tree, 25 and more feet in height. After the first frost these berries become red and are then of an acidulated sweet taste.

Oolana is the Mongol and Manchurian name for **Prunus humilis**. Bge., frequent in the mountains of North-China and Southern Mongolia. As to the other fruit mentioned, it is difficult to say, what is meant, for P. gives no native name. Perhaps he saw *Sorbus aucuparia*. L.

P. mentions further the following herbaceous plants he met with in these mountains; a fine *Angelica*, *Dictamus albus*, *Parsnip*, *Asparagus*, *Chelidonium*, *Potentilla*, *Agrimonium*, *Pimpernel* (Poterium sanguisorba.), *Pouliot* (Mentha.), *Joubarbe* (Sedum.), *Artemisia*, *Absinthium*.

I have adduced the preceding particulars merely on account of the length of time that has elapsed since their publication, for the botanical features of the regions Parennin traversed about 180 years ago, are well known now. We can therefore account for the plants he speaks of.

Finally I may mention, that Parennin was the first European, who notices the elegant **Wisteria chinensis** D.C., well known now also in our gardens. The climbing plant *ten lo hoa* he speaks of (see Grosier: la Chine III. 66.) in a letter to Father Du Halde, with violet flowers hanging down in large bunches, is without doubt W. chinensis, sin: 藤蘿花 *teng lo hua*, growing wild and also much cultivated in North-China.

PETRUS JARTOUX, a Frenchman, born 1668, joined the Chinese mission 1701, † in Peking 1720.

We owe to this missionary a very valuable article on the **Ginseng** plant (*Panax Ginseng* C.A. Mey.) contained in a letter addressed to the Procureur général des Missions des Indes et de la Chine, and dated Peking, 12 April, 1711. (l.c. III. 183.)

The Fathers Jartoux and Regis had been intrusted by the Emperor Kanghi with the survey of Manchuria and the eastern part of the Great Wall, and on this occasion Jartoux had opportunity to visit the very country where the finest specimens of this famous plant grow, near the frontier of Corea. Jartoux describes the plant and the mode of its collection and preparation for the Emperor's use, and adds also a drawing of it made by himself from nature. Du Halde in his great work on China reproduces this drawing. Jartoux here gives the first authentic account of Chinese Ginseng. Lamarck in his Encyclop. Botan. II. 714 gives an abstract of this memoir.

GASPAR CHANSEAUME, a Frenchman, born 1711, joined the Chinese mission 1746, † in the province of Kiangsi in 1761. He has left an interesting memoir, written about 1750, and published in the Panth. lit. III. 830, on **Chinese Insectwax.** Ch. who speaks from his own observation made in the province of Hu kuang, gives some very valuable information regarding the insects which produce the wax, as well as with respect to the trees upon which they use to live. (Comp. above Martini 37, Maghellaes.)

Father **J. B. DU HALDE**, in his admirable and comprehensive work: **DESCRIPTION DE L'EMPIRE DE LA CHINE**, published 1735 in French, and translated into many other languages, devotes several chapters to Chinese Botany, viz: I 16–27 Fruits, trees, flowers, economic plants; II. 64. On Chinese Agriculture and the Cereals of China; II. p. 143–153. On the abundance of several productions in China. Finally, there is in vol. III 378–509 a long treatise on Chinese medicine, all translations from Chinese medical works, especially from the *Pen ts'ao kang mu*, the well known Chinese book on Natural History and Materia medica. We find there several descriptions of Chinese medicinal plants. According to Le Comte (I 368.) these translations are due to Father *Visdelou*, one of the most distinguished sinologues. (Born 1656 in France, joined the Chinese mission 1687, + in India 1737.)

As Du Halde has drawn all the information. brought together in his work, from the letters of the Jesuit missionaries, we meet in it most of the matter preserved in the Lettres édifiantes. He never quotes his sources, but gives in the preface a list of the names of the missionaries, who have contributed to the compilation of the work. I need not mention that Du Halde had never visited China. He was himself a Jesuit and it seems that he made use of many letters, which the missionaries in China addressed to him and which are not included in the collection of the Lettres édifiantes.

In the sequel I give a list of the Chinese plants spoken of in Du Halde's work, supplying the botanical names as far as these plants are known to me. I quote from the original French edition.

The fruit *Tsetse* (I. 16.) is *Diospyros Kaki*. (v. Semedo 4, Boym 14.) Oranges, Citrons, Lemons (I. 16 and II. 143.)

Litchi and *Long yen* (I. 16.) *Nephelium Litchi* and *N. Lungan* (v. Martini 7.)

Pampelmoose. yeoutse (I. 16. 17). *Citrus decumana*. L. (v. Martini 9.)

The fruits *Tcin lan* and *Quang lan*, resembling our olives (I. 16. 17.) are *Canarium Pimela*. Koen. sin: 青欖 *ts'ing lan*, and *C. album*. Räush. sin: 橄 | *kan lan*.

The *hoa tsiao*, Chinese Pepper (I. 17.) is Zanthoxylum (v. supra Le Comte 8.) I do not know what is meant by "arbre qui produit des pois" (I. 17.) perhaps *Robinia* or *Caragana*.

Some interesting particulars with respect to the Chinese *Varnish* tree, *Tsi chu* (I. 17, II. 174.) Comp. also above Martini 35.

In the Phil. Trans. vol. XXII. p. 525. (1700) is an article: On the way of making China Varnishes sent by the Jesuits in China to the Grand Duke of Tuscany, communicated by

Dr. *W. Sherard*, the well known botanist, who is said to have gained this information whilst in Rome with his pupil, the Duke of Beaufort.

The tree *tong chu*, with fruit resembling walnuts and containing a poisonous oil, used for painting, (I. 18.) is the *Aleurites cordata*. Müll. (*Elaeococca verrucosa* Adr. Juss., *Vernicia montana*. Lour.) sin: 桐樹 *t'ung shu*.

The *Tallow tree* (I. 18, II. 143.) v. supra Martini 36.

The *pe la chu* or Wax-insect tree. (I. 18.) Martini 37. sin: 白蠟樹 *pe la shu*.

The *tchou tse* or *Bamboo* (I. 19.) sin: 竹子 *ch'u tsz'*. Martini 33.

The *cha mou*, yielding an excellent timber wood (I. 19.) is the *Cunninghamia sinensis*. R. Br. sin: 沙木 *sha mu*.

The *nan mou*, a precious timber wood, much used for building the Imperial palaces (I. 19.) is, as my friend, Father David, kindly informed me, a species of *Laurus*. He saw the tree in Sz'ch'uan.

The *tse tan* or *Rose wood*, the *tie ly mou* or Iron wood (I. 19.) 紫檀 *tsz' t'an*, a heavy precious wood, much used for furniture. The tree which produces it seems to be unknown to botanists. With respect to Iron wood comp. above Martini 32.

The *Tea* plant (I. 20.)

The tree *tcha yeou*, the fruit of which yields an oil (I. 22.) is the *Camellia Sesanqua*. Thbg. (C. oleifera. Abel.) The oil, styled Tea oil by Europeans, is 茶油 *ch'a yu* in Chinese.

The flower *mo ly hoa* (I. 23) is *Jasminum Sambac* L. v. supra Martini 19.

The tree *kuey hoa*, with fragrant flowers (I. 22.) is *Olea fragrans*. Thbg. v. supra Martini 20.

The flower *lan hoa* or *lan wei hoa* with unornamental yellowish but very fragrant flowers (I. 23.) is *Cymbidium ensifolium* Sw., in Chin: 蘭 *lan* or 蘭蕙花 *lan wei hua*.

A tree called *ouen koang chu* in Peking, with white flowers, and fruits with the appearance of a peach, but containing large black and hard seeds. (I. 23.). This is *Xanthoceras sorbifolia*. Bge. sin: 文冠樹 *wen kuan shu*.

Lien hoa (I. 24.) *Nelumbium speciosum*. W. (Martini 16.).

Pe tsi (I. 24.) *Eleocharis tuberosus*. Schult. (Martini 14.)

A peculiarity of the *Chinese Cabbage*, *pe tsai* is noticed, (I. 24.) which does not form heads like European Cabbage. This is *Brassica chinensis* L. sin: 白菜 *pe ts'ai*.

Rhubarb, the *Fou ling* and the *Pe fou ling* (I. 25.) v. supra Martini 40, 41.

I suppose, that by the medicinal herb *Fen si* described on the same page, the 防己 *fang ki,* Pen ts'ao XVIII b. 23, is meant. The Chinese plant of this name is however unknown to botanists. In Japan these characters denote *Menispermum acutum.* Thbg.

Another medicinal plant *Ti hoang,* of the province of Honan, is mentioned on p. 26. This is *Rehmannia glutinosa.* Lib. very common in the neighborhood of Peking, sin: 地黃 *ti huang.* According to Cibot: Mém. conc. Chin. V. 498 the root of it yields a yellow dye.

With respect to *san tsi* (p. 26.) see above the account given by Father Parennin of this plant.

The tree with long pods, *tchang ko tse chu, Cassia fistula,* in the province of Yünnan (I. 26.) 長果子樹.

Cannelle Chinoise (Cassia bark) in the province of Quang si (I. 27.) v. supra Martini 21.

The plant *Tien,* used as a blue dye (I. 27.) is *Indigofera tinctoria.* L. sin: 靛 *tien.* But *Isatis indigotica* has the same name.

The Cotton plant (II. 147.)

The *kou chou* is a tree, which has much the appearance of a fig tree. It contains a milky juice. Its leaves are divided into irregular lobes. The juice is used by gilders (II. 148.)

This is *Broussonetia papyrifera.* Vent. in Chinese 穀樹 *ku shu* or 楮 *ch'u.* Du Halde does not mention the principal use of this tree in China, a very strong paper being manufactured from its bark.

On the same page a much detailed but very obscure desription is given of a tree called *lung ju çu,* the fruit of which has a peculiar stone containing an almond-like kernel. It seems to me that the first syllable of the name is wrong and we should read *kia ju tsz',* which according to Boym is the Chinese name for *Anacardium occidentale.*

Mo lien, a large tree with large deciduous leaves. It puts forth its conspicuous lily-like flowers before the leaves; some trees have red, others white or yellow flowers (II. 149.)

木蓮 *mu lien* or 木蘭 *mu lan* is the Chinese name for *Magnolia obovata.* Thbg.

Lamoë, a tree with opposite leaves and yellow, very fragrant flowers, which the tree puts forth in winter (II. 149.)

Chimonanthus fragrans. Lindl. v. supra Semedo. 12.

Ou tong chu (II. 149.) *Sterculia platanifolia.* Cav. v. supra Le Comte 9.

The *tcha hoa* (II. 149.) is *Camellia japonica.* L. sin; 茶花 *ch'a hoa.*

Description of a peculiar tree called *tse song* or *yuen pe.* Some of its leaves are prickly and resemble those of the Juniper tree, whilst other branches of the same tree present Cypress leaves. (II. 150).

This is *Juniperus chinensis L.* a large tree, which shows indeed the above mentioned peculiarity. Scale-like closely appressed leaves or linear spreading ones occur in different parts of the same tree. Its Chinese name is in Peking 刺松 *tsz' sung* (prickly pine). The name 圓栢 *yüan po* is applied to a different coniferous tree, according to Chinese books.

On the same page begins a long treatise on *Ginseng*, for the greater part a reproduction of Jartoux's memoir. It is accompanied with the drawing of the plant made by Jartoux.

Among the Chinese medicinal plants noticed in the 3d vol. of Du Halde's work, there is only one the name of which appears for the first time in the records of the Jesuits. On p. 496 is an account of certain *Galls* call *ou poey tse* and produced upon a tree *yen fou tse.* These galls are used by dyers to produce a black color.

As is known now,—these galls constitute a regular article of commerce—the tree or shrub on which they are, found is *Rhus semialata.* Murr. Sin: 鹽麸子 *yen fu tsz.* The galls are termed 五倍子 *wu pei tsz'.*

Du Halde's work is illustrated by eleven engravings representing Chinese plants. He does not quote the sources of these drawings but from comparison I have been able to trace them.

1. The *Bamboo.* (taken from Niewhoff, resp. Bontius.)
2. The *Sugar cane.* (Niewhoff.)
3. The *Lichi* tree. (Boym's Flora sin.)
4. *Artocarpus incisa.* L. (Niewhoff, resp Bontius 119.)
5. *Betelpepper* (Niewhoff, resp. Bontius. 91.)
6. The *Cotton* plant. (Niewhoff.)
7. The *Ginseng.* (reproduced from Jartoux's original delineation.)
8. *Fouling, Radix China.* (Boym's Flora sin.)
9. The *Rhubarb plant.* (Kircher's China illust.)
10. *Ou tong chou, Sterculia* (Le Comte.)
11. The *Tea* plant (Niewhoff.)

Having brought down thus far my review of the observations made by the ancient Jesuit missionaries with respect to

Chinese plants, I must in the meantime leave the learned Fathers, and, to lay down in the order of time my material for a history of botanical discoveries in China, devote a chapter to an English naturalist, who in the very beginning of the 18th century visited China. In another chapter I shall have to speak of some Swedish travellers and naturalists, who half a century and more later, collected plants in the neighborhood of Canton or left accounts of their botanical observations in China.

II JAMES CUNNINGHAM 1702.

Eleven years after E. Kaempfer had studied the Flora of Japan and brought home from that country about 500 plants, **JAMES CUNNINGHAM**, an Englishman, had the opportunity of investigating the Flora of China at several points in the Empire. He has the merit of having been the first European, who made botanical collections in China and whose rich herbarium safely arrived home, where it was described by several distinguished botanists of that time. The only biographical particulars I have been able to gather with respect to Cunningham are: that in 1698 he was sent to China as a physician to the English factory at *Amoy*. He visited also the island of *Chusan* and was subsequently transferred to the island of Pulu Condore, where the English had also established a factory. The publisher of the Philosophical Transactions styles him F. R. S. Besides his botanical collections made in China, he had sent also to England a few plants from the island of Ascension, gathered on his way to China. Comp. Pultney's historical and biographical sketches of the progress of Botany (1790) II. 58—and Sprengel's Geschichte der Botanik, II. 79.

In the Philosophical Transactions of the year 1702, vol. XXIII. p. 1201. sqq. two of Cunningham's letters treating of China and addressed to the editor of that Journal, have been published. As they are not very long, I shall reproduce them here, adding occasionally some explanatory notes. An abstract of these letters has already been given in vol. IX. p. 133 of the Chin. Repository.

It appears from the first of these letters that the ship in which Cunningham came out to China proceeded directly from England to Chusan. He does not allude in his letters, both written in 1701, to his stay at Amoy. But as among his Chusan plants described by Petiver we find also several noted as having been gathered on the island of *Emuy*, we can conclude, that C. went from Chusan to Amoy in 1703. We know from the "New account of the East Indies" published in 1723 by Capt. Hamilton, that the factory at Chusan was commenced by the E. I. Company in 1700 and abandoned by the chief supercargo Mr. Catchpole in 1703 by reason of the exactions of the Chinese government and the Company's neglecting to send money.

CUNNINGHAM'S LETTERS ON CHINA.

The first of these letters bears no date. It seems to have been written in October 1701 (but perhaps in 1700). It reads as follows:

Sir! My last to you was from the island of Borneo, in which I gave you an account of our arrival there the 17th July, where we staid but two days, the season of the year being so far past, and from thence made the best of our way through the Strait of Banca with favourable winds and weather, till we came on the coast of China the 13th of August. There we had variable winds which carried us abreast of *Emuy* the 19th following, at which time the north east winds setting in fresh, put us in great fears of losing our passage: whereupon we were forced to turn it up against wind and current all the way, the weather so favouring us, that we were never but by our topsails, else we should have lost more ground in one day, than we could have gained in eight. The last of August we came to an anchor under the *Crocodile islands* both to shelter us from the bad weather and also to look for fresh water, not having recruited since we came from the Cape of G. H. There are three small islands lying in the latitude of 26 degrees, about 6 leagues from the river of *Hocksieu*; on two whereof we found very good fresh water with a convenient watering place on the south west side of the innermost of the three[*]. By the assistance of a few Chinese fishermen we procured some fresh provisions from the mainland, because we did not reckon it safe to adventure ourselves thither, lest we should have been brought into trouble by the government there. While we lay here, on the 5th of September, we had a sudden short shift of the monsoon to south-west, the fury whereof others felt, in coming upon the coast of China at the same time. The 8th of September we put to sea again, turning to windward night and day without all the islands, which are very numerous along this coast, to which we were all together strangers beyond Emuy, and the hydrography thereof is hitherto so imperfect, that there was no trusting to our drafts, which made our navigation somewhat more dangerous. However on the first of October we got into the latitude of 30°, where we came to an anchor near the land, until we found the way by boat to *Chusan*,* about 12 leagues within the islands, from whence we had a pilot, who carried us safely thither on the 11th of October. Upon this island the Chinese have granted us a settlement and liberty of trade, but not to *Ningpo*, which is 6 or 8 hours sail to the westward, all the way amongst islands; this being the largest, is 8 or 9 leagues in length from E. to W. and 4 to 5 in breadth, about 3 leagues from that point of the mainland called Cape *Liampo* by the Portuguese, but *Khi tu*† by the Chinese. At the westend of this island is the harbour, very safe and convenient, where the ships ride within call of the factory, which is built close by the shore on a low plain valley, with near 200 houses about it for the benefit of trade, inhabited by men, whose jealousy has not as yet permitted them to let their wives dwell here; for the town where they are, is ¼ of a mile further from the shore, environed with a fine stone wall, about 3 miles in circumference, mounted with 22 square bastions placed at irregular distances, besides 4 great gates, on which are planted a few old iron guns, seldom or never used; the houses within are very meanly built. Here the *Chumpeen*‡ or governor of the island lives and betwixt 3 or 4000 beggarly inhabitants, most part souldiers and fishermen; for, the trade of this place being newly granted, has not as yet brought any considerable merchants hither. The island in general abounds with all sort of provision, such as cows, buffaloes, goats, deer, hogs wild and tame, geese, ducks, hens; rice, wheat, calavances,[*] coleworts, turnips, potatoes, carrots, beets, and spinach; but for merchandize there is none but what comes from Ningpo, Hangcheu, Nankin and the island towns, some of which I hope to see, when I have acquired a little of the Chinese language.

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[*] There can be no doubt, that C.'s Crocodile islands are the *Dogs islands* of modern maps, south east of the mouth of the Min river on which Fu chou (or *Hok chiu* in the local dialect) is situated.

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* The island of *Chusan*, the largest of the group marked as Chusan Archipelago on our maps, is immediately opposite the mouth of the river on which Ningpo is situated. The Chinese call it 定海 *Ting hai*, which is properly the name of a district city on this island. 舟山 *Chou shan* (*Chiu san* in the local dialect) is an ancient name of it not found on modern Chinese maps. The island of Chusan is not to be confounded with *Port Chusan*, on the south-eastern coast of Corea, where Ch. *Wilford* collected plants about a quarter of a century ago.

† A long projecting promontory opposite Chusan, 岐頭 *K'i t'ou* of Chinese, *Ke tou* point of English maps.

‡ 總兵 *Tsung ping*, a general.

Here also the *Tea* grows in great plenty on the tops of the hills, but it is not in that esteem which what grows on more mountainous islands. Although this island is pretty well stored with people, yet it is far from what it was in Father Martini's time, when he describes *Cheusam*, and this puts me in mind, that the superstitious pilgrimages thereto, mentioned by him, must be meant of the island *Pou to*[†], which lies 9 leagues from hence and 3 miles to the eastward of this island, whither (they say) the Emperor designs in the month of May next (being his birthday and the 40th of his age) to come to worship in an ancient pagod there, famous for sanctity, having sent one of his bonzes already thither, to get all things in order.

Chusan. November 22. 1701.

Sir! I formerly told you that the Emperor designed to have come to the island of *Pou tu* to worship in the month of May last, being the 40th year of his age, I should have said of his reign. But all things being prepared there for his reception, he was dissuaded from his purpose by some of his mandarins, who made him believe that the terrible thunder there was very dangerous. This Pou to is a small island about 5 leagues round at the east end of this island, famous for the superstitious pilgrimages made thither for the space of 1100 years. It is inhabited only by bonzes, to the number of 3000, all of the sect called *Ho shang*[‡], or unmarried bonzes, who live a Pythagorean life; and there they have built 400 pagodas, two whereof are considerable for their greatness and finery, being lately covered with green and yellow tiles brought from the emperors pallace at *Nankin*, and inwardly adorned with stately idols finely graved and gilded, the chief whereof is the idol *Quon em*[§]. To these two great pagodas belong two chief priests, who govern all the rest. They have several ways and avenues cut through the island, some of which are paved with flagstones and overshaded with trees planted on each side. Their dwellings are the best I have yet seen in these parts; all of which are maintained by charitable devotions And the junks which go from Ningpo and this place to Japan touch there both going and coming, to make their offerings for their good success. There is another island called *Kimtong*,[*] 5 leagues hence in the way to Ningpo, whither, they say, a great many mandarins retire, to live a quiet life after they have given over their employments. On that island also are said to be silver mines, but prohibited to be opened. The rest of the circumjacent islands are either desert or meanly inhabited by a few fishing people, but all of them stored with abundance of deer. For it is not long, since this island of Chusan began to be peopled. It is true in Martini's days, about fifty years ago, it was very populous for the space of 3 to 4 years, at which time the fury of the Tartarian conquest was so great, that they left it desolate, not sparing so much as the *Mulberry* trees, for then they made a great deal of raw silk here, and in this condition it continued till about 18 years ago, that the walls of the fort or town, which now is, were built by the governor of Ting hai, for a garrison to expell some pirates, who had taken shelter here. About 14 years ago the island beginning to be peopled, there was a chumpeen or general sent to govern it for 3 years, to whom succeeded the late chumpeen, who procured the opening of this port to strangers and whose government continued till April last, being translated to the Chumpeen of *Tien cing wei*[†], near to Pekin, and was succeeded by the present chumpeen, who is son to the old *Chun koon*[‡] of Emuy.

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[*] *Dolichos sinensis* L.

[†] 普陀山 *P'u to shan.* This island is indeed exclusively occupied by Buddhist priests. It has 72 Buddhist temples. In the description of his Chinese plants Cunningham mentions some other islands of the Chusan Archipelago viz: *Thow whey san* 桃花山—*Pum si san.*

[‡] 和尚 *Ho shang*, a Buddhist priest.

[§] *Kuan yin*, 觀音—the Goddess of Mercy.

They have got no arts or manufactories here, but making of lackered ware, a particular account whereof I cannot as yet send you. They begin to plant the mulberry trees, to breed up worms for the production of raw silk and they make some Tea, but chiefly for their own use. The three sorts of *Tea* commonly carried to England are all from the same plant, only the season of the year and the soil makes the difference. The *Bohe*, or *Voii*,[||] so-called after some mountains in the province of Fokien, where it is chiefly made, is the very first but gathered in the beginning of March, and dried in the shade. The *Bing* [*] tea is the second growth in April, and *Sing lo* [†] the last, in May and June, both dried a little in pans over the fire. The Teashrub being an evergreen is in flower from October to January and the seed is ripe in September and October following, so that one may gather both flowers and seed at the same time, but for one fresh and full seed there are a hundred nought. These make up the two sorts of fruit in Le Comte's description of tea: as for his other sort, which he calls flymic pease, they were nothing but the young buds of the flowers not yet opened. Its seedvessels are really 3 capsular, each capsule containing one nut or seed, and, although two or one capsule only come to perfection, yet the vestiges of the rest may be discerned. It grows in a dry gravelly soil, on the sides of hills, in several places of the island without any cultivation.

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[*] 金塘山 *Kin t'ang shan.*

[†] *Now T'ien tsin fu.*

[‡] 中軍 *Chung kün.*

[||] 武夷 *Wu yi, in Amoy bo he.*

Le Comte is mistaken in saying (p. 96) that the Chinese are wholly strangers to the art of grafting, for I have seen a great many of his paradoxical *Tallow trees* ingrafted here, besides some other trees. When they ingraft, they do not slit the stock as we do, but cut a small slice off the outside of the stock, to which they apply the graft, bringing up the bark of the slice upon the outside of the graft, they tye all together covering with straw and mud as we do.

Martini says he could never find a Latin name for the *Fula Mogorin* of the Portuguese (v. supra Martini 19). I am sure it is the same with the *Syringa arabica* flore pleno albo in Parkinsone. [‡]

He says also, that the *Kieu yeu* or *Tallow tree* bears a white flower like a Cherry tree, but all that I have seen here bears a spike of small yellow flowers like the julus of a Salix. [‖]

The *Bean* or *Mandarin Broth*, so frequently mentioned in the Dutch Embassy and by other authors is only an emulsion made of the seed of Sesamum and hot water. [§]

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[*] 茗 *Ming*, in Amoy *beng*.

[†] 松 蘿 *Sung lo*, name of a mountain, see above Martini 23.

[‡] Cunningham is right. Lamarck Enc. bot. IV 210 quotes the Syringa arabica (already known to Clusius) as a synonym of *Jasminum Sambac*. Ait.

[‖] Cunningham's statement is correct. See above Martini 36. note.

[§] In the narrative of the third Dutch Embassy a *Bean soup* is mentioned which they believed to be prepared with milk and Peking butter (sic!). But it seems to me that the above statements of Cunningham and the Dutch are to be referred to the Chinese condiment commonly called *Bean curd* by Europeans. (Williams' Middle Kingdom, II. 42.)

(I omit the particulars given with respect to fishing, tillage, and obtaining of salt.)

Had I not found the printed Newspapers last year take notice of a singular root brought from China by *F. Fontaney*, * I should not have told you that I have seen one since I came here, called *Hu chu wu* (which I take to be the same), whereto they ascribe wonderful properties of prolonging life and turning gray hairs into black, by drinking its infusion for some time, in so much that they say it is to be had in value from 10 taëls to 1000 or 2000 a single root, for the larger it is, the more is its value and efficacy: which is too much money here to try the experiment. You have it mentioned in Cleyer's Medicina sinica, 84, under the name of *Ho zeu u*. It is likewise painted in the 27 table of those plants Mr. Petiver has of me.†

After this C. relates a Chinese legend with respect to this root. A man fell down from a precipice and found himself in a valley from which he was not able to come out. He lived there for a hundred years feeding on the above-mentioned root. He was finally delivered by an earthquake, which destroyed the valley.

Cunningham distributed his Chinese botanical collection, made in Chusan, at Amoy and on the Dogs islands near Fu chou, among his friends in England. *Plukenet* and *Petiver* seem to have received the greatest part of it. I may be allowed to say here a few words with respect to these ardent and able botanists and their works, in which they described and depicted Cunningham's plants, soon after they had received them.

James Petiver, Apothecary of the Charterhouse, London, and secretary to the Royal Society, an active collector of objects of natural history, born about 1658 + 1718. He had correspondents in most parts of the world, who sent him productions, plants, animals, etc. He was a friend of the botanist *Ray* and of Sir *Hans Sloane*, the celebrated promotor of science and President of the Royal Society (born 1660 + 1752), who offered him £4000 for his collections of specimens. As the Sloanian collection subsequently gave origin to the British Museum (Hanbury's Science pap. 384) Petiver's specimens may also be stored there.

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* *Joannes de Fontaney*, Jesuit Missionary in China, end of the 17th cent.

† What C. tells with respect to the plant 何首烏 *ho shou wu* is found also in Chinese works. A good drawing of it is given in the Chin. Botany Chi wu ming shi t'u k'ao XX. 16, a climbing plant with a large tuberous root, and this agrees with the engraving under the same Chinese name in the Japanese Botany So mo kou etc VII. 80, which according to Franchet and Savatier (Enum. pl. Japon. I 402.) is *Polygonum multiflorum*. Thbg. and has in fact tuberous roots.

In a paper published in the XXIII. vol. of the Philosophical Transactions (1703) Petiver describes about 70 Chinese plants supplied principally by Cunningham. But previously he had published in his *Museum*. (1692-1703) short characteristics of 1000 exotic plants, amongst which we find scattered about 100 from China, the greatest part of them not mentioned in the Philosoph. Trans. Besides this he issued his *Gasophylacii Naturae Decades decem*, 1702-1709, short descriptions and engravings of 100 exotic plants, about 20 of which were selected from Cunningham's Chin. collection.

It appears from Cunningham's letters and from Petiver's quotations that the latter had also received from C. a collection of Chinese drawings representing Chinese plants. Petiver frequently speaks of "Herbarium nostrum sinense pictum."

Leonard Plukenet, born 1642 + 1705, a learned English botanist, educated at Oxford. He was in war with Sloane and Petiver. Plukenet has published many botanical works and described and depicted a great number of new plants especially from America, the East Indies and China. Almost all Chinese plants he mentions had been handed to him by Cunningham, and it seems that the latter had entrusted the greatest part of his herbarium to Plukenet, who described about 400 Chinese specimens in his *Amaltheum botanicum* seu Stirpium Indicarum alterum copiae cornu 1705, intermixed with American and Indian plants. Nearly one half of the Chinese plants Plukenet faithfully figured in vol. III of his *Phytographia* *. These figures are small and often much reduced from the natural size, but are generally very characteristic.

In 1779 Dr. *P. D. Gieseke* added an Index Linneanus in Plukenetii opera botanica, in which he ascertained a great number of the plants there described and figured, but with respect to the Chinese specimens in the Phytographia he has only in a few cases been able to identify them.

Perhaps the botanist *Ray* (1628-1705.) disposed also of a part of Cunningham's plants. In his *Historia plantarum*, in the 3d vol. (1704) he describes some of them. It may be however, that he copied from Petiver and Plukenet. I have seen the Hist. plant. but had then no opportunity of comparing it with the Amaltheum and Petiver's works. As appears from Petiver's statements, C. had given also to Sloane some of his specimens.

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* The 3rd vol. of Plukenetii Phytographia bears the date 1692. But this is evidently an error for each engraving in it is referred to the text in the Amaltheum, published 1705. Pl. published also an *Almagestum Botanicum*, 1696, in which a few Chinese plants appear.

On the whole, nearly 600 Chinese plants have been described by Petiver and Plukenet from Cunningham's specimens. It would be interesting to know what has become of this herbarium. Petiver's botanical collections as well as those of Plukenet had besn acquired by Sloane and were finally incorporated into the British Museum, where they may still exist, or at least some "rudera" of them.

After Cunningham, botanical collectious have been made twice at Chusan, as far as I know. Dr. *Th. Cantor* visited the island in 1840 and in an account of Cantor's botanical collections in the Journ. As. Soc. Beng. XXIII. 1854, Mr. Griffith enumerates 133 plants gathered at Chusan, but he gives generally nothing more but the genus names. There is only one plant of the collection he describes as new, viz. *Actinostemma tenerum*. I am not aware whether Cantor's herbarium is now in England or in India.

The well known traveller and botanical collector *R. Fortune* (who died in April 1880) investigated the Flora of Chusan some years later. He first came to that island in 1843 and visited it again in 1850. His plants, distributed by the R. Hort. Soc., are found in all the more important herbarium's of Europe. It seems that only a small part of Fortune's Chinese plants have been described.

Concerning the Crocodile islands (Dogs islands near Fu chou) where Cunningham gathered some specimens, the botanical features of these islands are probably the same as those of the adjacent mainland. The Flora of that part of China, and I must say the same with respect to Amoy, is very imperfectly known. But all plants gathered at those places may, I believe, be found in Dr. Hance's magnificent herbarium, and he is probably the only botanist who would be able to identify Cunningham's plants from the ancient descriptions and drawings left.

A great part of Cunningham's plants, described and depicted by Petiver and Plukenet, are probably included in the later collections alluded to. I therefore have thought it would be useful to bring under the notice of modern botanists and to place together the scattered remarks and diagnoses referring to Cunningham's plants, as found in the Amaltheum and in Petiver's writings. But as the descriptions there are often long and detailed, I cannot venture to reproduce the whole and shall often confine myself to quoting only the short diagnoses, which generally precede the descriptions, referring the reader to the original works and the drawings. The latter of course will be more serviceable to identify the plants in question, than the descriptions given.

MUSEI PETIVERIANI CENTURIAE DECEM RARIORA NATURAE CONTINENS

London 1692—1703. 2 tab.

This is an enumeration of exotic plants, from Asia, the Cape of G. H. and America. I extract the following notes on Chinese plants found there. These Chinese specimens were gathered, as Petiver states, chiefly by *Cunningham*, a few of them also by *Keir* and *Barklay*, surgeons, and *Sam. Brown*. The latter visited Chusan before Cunningham.

The first century mentions three Chinese Ferns.

Adiantum nigrum chinense, tenuiter divisum, pinnulis minimis obtusis bifidis. Pluk. Alm. 29. tab. 4, 1. Raii. h. pl. 1854. Chinese black Maidenhair with blunt forked leaves. *Hamoy* in China.

Adiantum tenuifolium. Lamarck Enc. Bot. I. 44. Gathered by Sonnerat in India.

Adiantum nigrum lanuginosum Chinense [*]. Pluk. Alm. 30. tab 4, 2.—*Dryopteris lanuginosa* chinensis Raii. h. pl. 1854. Hoary black Chinese Maidenhair *Hamoy* in Chin.

Filix pyramidalis chinensis. Filix e China mollis, auricula ad pinnulae basim superne producta, summo folio longius mucronato. Pluk. Alm. 30. fig 2.—Fil. spec. e China delata nobis. Raii. h. pl. 1853. Our China Steeple Fern.

352. *Argentina Emuyaca*, foliis ramosis, altius incisis. From Emuy, a Chinese island.

400 *Fagopyrum chinense* Bistortae folio.

402. *Filix Emuyaca* pinnis proliferis mire ornatis.

403. *Filix Emuyaca* pinnis singulis integris et divisis, marginibus seminiferis.

425. *Kaduli Emuyaca*, Tuberariae angustiore folio.

498. *Um ki* Chinensibus. Frutex Cynosbaty fructu alato tinctorio, barbulis longioribus coronatis.—The fruit supplies a famed ingredient used by the Chinese for dying scarlet.

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[*] *Adiantum Chinense* perelegans ramosum, folio flabelliformi cum rubedine perfuso. Pluk. Alm. ii. tab 4, 3. is diantum flabellatum L. Linneus describes yet another Chinese species: *A. chusanum*, which has been referred to *Davallia chinensis* Sw. by Sprengel.

This is Gardenia florida. L. See further on Pluk. Amalth. 29.

586. *Muscus* denticulatus Emuyacus minor erectus. Cuningh.

537. *Filix Emuyaca* Plantaginis aq. folio, caule nigricante. Cuningh.

541 *Phyllitis Emuyaca* major ramosa. Cuningh.

544. *Filix Emuyaca* pinnis longissimis integris margine pulverulento. Cuningh.

545. *Filix Emuyaco* pinnis majoribus denticulatis. Cuningh

547. *Filix Emuyaca* pinnis pyramidalibus serratis maculis in nervum oppositis. Cuningh.

554. *Filix chinensis* Lonchitidis facie, cujus lanago radicis *Poco sempie* vocatur. *Kim kow ja* (i.e. canis aurei crines). Herb. nostr. Chin. pict. tab. 10, fig. 8. Poco sempie. Mus. R. S: 386.

Probably Polypodium Barometz L. sin: 狗 脊 *kou tsi.*

640. *Fagara Emuyaca* Cardamomi sapore, ramulis et medio nervo foliorum utrinque spinosis.—Seems to agree with the Fagara minor from the Philippine islands, where it is called Cayutana.

The Cayutana is *Zanthoxylum heterophyllum* Sm., but Petiver's plant is probably *Z. nitidum.* D. C.

682. *Tamarisci* folio arbor chinensis, e cujus ligno fiunt sagittae. *Hose Diu.* Herbar. nostr. Chin. pict. tab. 9, 4.

757. *Capillaris* chinensis pinnulis rotundioribus. Fern from China.

857. *Amelanchier chusanensis* folio parvo subrotundo rigido, from China.

858. *Androsace chusanensis* Cortusae Matthioli folio (v. infra Philos. Trans. 52.)

859. *Angola chusanensis* Pruni folio, calice amplo.

860. *Anonymus chusan.* floribus spicatis, petalis tribus angustis.

861. *Apios* ex insulis *Crocodilorum.*

864. *Arbor chusan.* Laurocerasi folio serrato.

865. *Arbor chusan.* Laurifolio serrato subtus molli, virgulis verrucosis.

867. *Arbor Emuyaca,* flore minimo stamineo, albente, Ilicis folio.

875 *Aster chusan.* foliis superioribus integris, inferioribus Coronopi.

876. *Baccifera chusan.* racemifera, Loti arboris folio.

877. *Baccifera chusan.* racemosa, Arbuti folio.

878. *Baccifera chusan.* Theae folio.

879. *Baccifera* ins. *Crocodyl.* Celastri folio.

880. *Baccifera Emuyaca* dispermos, scandens, Flammulae facie.

886. *Calamintha chinensis*, Teucrii folio, flore staminoso.

887. *Camphorosmos chusan*, flore piloso.

888. *Carambu Emuyaca*, Persicariae foliis hirsutis.

The Caramba of Rheede is a *Jussieua*.

891. *Cerasus chusan*. floribus minoribus plenis.

892. *Chamaerhododendron chusan*. flore albo, Myrti romanae folio.

893. *Chamaerhododendron chusan*. flore coeruleo, foliis et calycibus hirtis.

895. *Christophoriana* forte *Emuyaca*, spinosa, Mori folio molli.

896. *Chusanicus* seu Planta capreolata, Arb. Judae folio, flore spicato.

897. *Clematis chusan*. folio cordato umbilicato.

898. *Coccifera Crocodyl*. Pimentae Jamaicensis folio.

899. *Cocculus* reniformis scandens *Emuyacus*, Cotini folio subtus molli.

902. *Conyza chusan* pilosa folio Sonchi integro.

Probably **Emilia sonchifolia**

904. *Cynoglossum chusan*. summo late ramoso.

905. *Cytisus Crocodyl*. foliis parvis subtus villosis.

909. *Euonymus chinensis*, Glycyrrhizae folio.

910. *Euonymus* forte *chusan*. Berberidis folio.

911. *Euonymus Crocodyl*. Laurocerasi folio.

912. *Euonymus Emuyacus*, Pervincae majoris folio, bacca solitari, vasculo bipartito vel tripartito inclusa.

913. *Eupatorium Crocodyl*. Leonuri folio.

916. *Ficus chusanensis*, Mori folio.

917. *Ficus chusanensis* minima, nigrescens, folio integro, superne scabro, subtus molli.—It bears fruit in Sept.

918. *Ficus* forte *chusan*. folio vulgaris facie sed molliori.

925. *Frutex Crocodyl*. foliis alatis subrotundis glaucis, subtus albidis.

926. *Frutex Crocodyl*. Fagi foliis parvis, venis subtus purpureis.

930. *Hai hoa* Chinensibus, flore albo, siliquis gummosis articulatis.

Probably **Sophora japonica** L. sin: 槐花 *huai hua*. Pod contracted between the seeds, containing a viscid matter.

931. *Ham shaw* Chinensibus. Arbor flore albo, calyce hirsuto.

935. *Jacoboea chusan*. folio lato.

936. *Jujubae* folio minore, planta repens chinensis.

937. *La boe* Chinensibus. Arbor flore luteo, foliis acutis binis decussatis.

Chimonanthus fragrans Lindl. sin: 蠟梅 *la mei* or *la bai* in some Southern dialects.

938. *Lactuca Emuyaca perfoliata*, Sonchi folio.
943. *Lotus* arbor *Emuyaca*, Betulae folio.
944. *Lupulus chusan*. minor, Rubi folio.

Humulus japonicus S. et Z. gathered also by Cantor in Chusan.

948. *Oxycanthus chusan*. Pyracanthae folio.
950. *Persicaria chinensis*, folio subtus albido. V. infra Phil. Trans. 28.
951. *Periclymeni* flore frutex *Emuyaca*, Pervincae majoris folio.
953. *Phaseolus chusan*. siliqua hirta folio angustissimo.
954. *Phaseolus chusan*. siliqua hirta folio latiore.
956. *Phyllitis chusan*. ramosa, pinnis alternis basi superiore auriculatis.
957. *Pimenta chusan*. Buxi folio, floribus filamentosis.
958. *Pimenta chusan*. Melissae folio, flore petaloso.
962. *Pruni sylvestris* facie frutex *Emuyacus*, spinis fere foliosis.
964. *Quinquefolium chusan*. folio subtus incano, albo.
965. *Ricinus chinensis* sebifera, Populi nigrae folio.

Stillingia sebifera Michx. V. supra Martini 86.

966. *Ricinus Emuyacus* Verbasci folio, fructu farinaceo.
968. *Ros Solis chusan*. perelegans, caule folioso. V. infra Phil. Trans. 55.
969. *Rosa* forte *chusan*. Trichomanis folio.
970. *Rubiae* facie planta *Crocodyl*. cordato folio.

Perhaps Rubia cordifolia. L.

972. *Samolus Emuyacus*, Rorismarini folio.
974. *Scandens Emuyaca* capreolata planta, foliis cordatis serratis.
975. *Serratula chusan*. folio hastato.
976. *Serratula chusan*. folio subtus incano albo.
977. *Siliquifera chusan*. Fraxini folio fructu sericeo.
978. *Shew kow* chinensibus, folio oblongo serrato nervoso.
979. *Shuran* chinensibus. Arbor trifoliata, floribus minimis racemiferis.
960. *Stoechadis* spica Planta *chusan*. Galeopsis folio.
981. *Styrax liquida*, folio minore ex ins. *Emuy*.
983. *Thea chusan*. floribus majoribus, folio Alaterni serrato. V. infra Philos. Trans. 59.

984. *Thea chusan*. floribus minoribus, folio Alaterni cuspidato.

985. *Thea chusan*. sylvestris non potabilis.—The flowers much the same with the common, but the leaves less and thicker.

987. *Vaccinia chusan*. flore tubuloso, Pruni folio.

989. *Viburnum chusan*. spinosum, folio digitato.

990. *Vitex Crocodyl*. foliis oppositis Arbuti.

991. *Vitis* facie frutex *Emuyaca*, foliis serratis integris et tripartitis.

992. *Vitis* forte *Emuyaca* folio trifido dentato.

993. *Ulmi* folio minore frutex *chusan*.

994. *Ulmi* folio minore splendente *Emuyaca*.

995. *Volubilis* chinensis Laurocerasi folio minore.

997. *Yang diu* chinensibus. Arbor Salicis folio ramulis pendulis. Frequently painted on Japan work. Of the wood they make arrows.

柳 楊 *Yang liu* is *Salix babylonica*. L.

998. *Ya hap* chinensibus. Arbor flore albo, folio Anonae venosae.

999. *Zisyphus chusan*. foliis subtus argenteis, floribus minoribus.

1000. *Zisyphus chusan*. suberis folio, subtus punctato.

J. PETIVERI GAZOPHYLACIUM NATURAE ET ARTIS. 1702–1709.

Two volumes, each consisting of 50 plates. The following Chinese plants are represented by the drawings:

Tab. 6, fig. 8 *Cupressus chusanensis*, Abietis folio, from *Chusan*. The leaves are triangular, carinated, stiff and stand off from the stalk; its seed is brown and small, not much unlike Buck wheat but not so regular.

The drawing seems to represent **Cryptomeria japonica**. Don. Fortune observed this tree in Chekiang.

Tab. 12, fig. 3. *Tagetes chinensis*, foliis undulatis, radice cordiali. Herbar. nost. Chin. tab. 27, fig. 8. This is the wonderful plant *Hu chu u* of which Cunningham speaks in his letter.

As we have seen, the Chinese plant, C. alludes to, seems to be *Polygonum multiflorum*. Thbg. Petiver seems to reproduce the Chinese drawing of his Herbarium Chinense, which is not correct.

Tab. 19, fig. 5. *Sagittaria chinensis* foliis ternis longissimis. Herbar. nost. Chin. tab. 12, fig. 3. *Sa heo chaw* indigenis.

According to Lam. Enc. Bot. II. 504, this is **Sagittaria trifolia** L. Kth. enum. III. 157 thinks that S. **chinensis**. Sims. may be the same.

Tab. 19. fig. 6. *Ranunculus globosus* chinensis, flore pleno aurantiaco. *Wi tung te hoa* chinensibus. Herb. nostr. Chin.

tab. 18, fig. 18. This beautiful plant would be a fine ornament to our gardens.

Tab. 21, fig. 10. The *Tea shrub* is here figured with its leaf, flower and fruit.

Tab. 24, fig. 8. *Ninsin* and *Ginsing officinarum*. Dale Pharm. 340. 11. Raii hist. plant. 1338. Plukenet 101.7. Copied from a painting of the Roy. Soc. Grows in China and Japan.

The root of Ginseng is correctly represented, but not the leaves.

Tab. 26. *Pimenta chusan*. folio Alaterni. Vide infra Phil. Trans. 85.

Tab. 27. *Ou tum chu*.

Vide infra Phil. Trans. 82 Sterculia platanifolia.

Tab. 33, fig. 4. *Thea chinensis*, Pimentae jamaicensis folio, flore rosaceo simplici.

This is Camellia japonica. L. See Lam. Enc. Bot. I, 572.

Tab. 33, fig. 8. *Androsace chusan*. Cortusae Matthioli folio. Museum nostr. 965. I take this elegant plant to come next in kind to Linum umbilicatum, which Tournefort calls Omphalodes.

The drawing seems to represent Androsace saxifragae folia. Bge.

Tab. 34, fig. 3. *Ricinus chinensis sebifera*, Populi nigrae folio Mus. nost. 965. Chinese Tallow tree. Philos. Trans. 90.

Stillingia sebifera Michx.

Tab. 34, fig. 11. *Teucrium Crocodyl*. V. infra Philos. Trans. 41.

Tab. 35, fig. 7. *Vaccinia* forte *chusan*., Laurocerasi folio flore tubuloso.

The drawing seems to represent Vaccinium bracteatum Thbg. or V. *chinense*. Benth. Fl. hongk. 200.

Tab. 35, fig. 11. *Rosa chusan*. glabra, Juniperi fructu. This Rose I have received both from Chusan and China.

Linneus identifies this Rose with his Rosa indica, but Lindley with his R. microcarpa.

Tab. 36. fig. 1. *Gramen Lagopoides chusan*. spicis cristatis palescentibus. Phil. Trans. 24.

Pennisetum ?

Tab. 36, fig. 7. *Coccifera chusan*. Coryli folio, floribus exiguis racemiferis. Phil Trans. 67.

Symplocos ?

Tab. 36, fig. 8. *Fagara chusan*. Rhois virginianae folio, caule alato.

The drawing seems to represent Zanthoxylum Bungei Pl.

Tab. 45, fig. 9. *Zapotl. chinens.* fructu cinnabarino, *Xicu* Sinensibus, *Chicoy* Hispan., *Figocaque* Lusitan. Its leaves single, 6 inches long and 3 broad.—fig. 10. *Zapotl.* fructus, dried in the sun, as they do figs.—fig. 11. *Zapotl.* ossiculum.

Diospyros Kaki L. sin. 柿子 *shi ts'z.*

Tab. 63. fig. 8 is a *Loranthus.* See further on Linn. Chin. pl. 220.

Tab. 95. fig. 6. In Chinese *Samtanguy* or Flammula. Cat. 379. Grows about a yard and a half high, into many branches, bearing at the top scarlet Jasmin-like flowers. Kam. Ray. App. p. 7 pl. 23.

Ixora stricta Roxb. is called 山丹 *shan tan* (the red of the mountains) in Chinese.

Tab. 97. fig. 2. A Chinese Feather-few, with double white or blush flowers. Cat. 337.

Tab. 97. fig. 3. Another with a double yellow flower. Mus. Pet. 786.

ACCOUNTS OF SOME PLANTS FROM CHUSAN, COLLECTED BY J. CUNNINGHAM.

Published by *J. Petiver*. Philos. Trans. XXIII (1703.) p. 1421. The first 20 numbers refer to Corals from the Philippine Islands.

21. *Lingua cervina chusanensis* maculata media.

The root of this is like our common Polypody with fibres running from them. The leaves resemble Harts-tongue, but are longer and narrower, but as that bears its seed in slant streaks on the back of the leaves, these have them in round spots like those in Polypody, one on each side of the middle rib at near half an inch distance, beginning near the point, and reach above half the leaf.

22. *Lingua cervina chusanensis* maculata, parva.

This has a fibrous root, its leaves have scarcely any footstalk and rarely exceed 3 inches in length, the seeds stand in round spots like the last, as large but much closer set, reaching from the middle rib to the edge of the leaf, coming down about half way.

23. *Arundo chusanensis* polydactyloides, perelegans.

This reed has a very beautiful tuft, composed of about a dozen pappose spikes, like some of our Indian downy Cocks-foot grass, each above a span long.

24. *Gramen Lagopoides chusanense*, spicis aristatis pallescentibus.

This is next in kind to our Gr. Lagop. guineense, Gazoph. nat. tab. 2, fig. 7, et. Mus. 238, but its spikes are larger and both glumae and aristae are whitish, whereas the Guinea sort when full ripe is ferrugineous and its spike turns downwards. Dr. H. Sloane has the only specimen I have as yet seen of this new grass.

25. *Panicum cristatum chusanense*; spica multiplici nude.

This is a very elegant grass, each capsule somewhat resembles those of our Nasturtium verrucosum or Swines Cress.

26. *Secalis* facie frumentum *chusanicum*.

27. *Cadelari siciliana* folio acuto, Amaranthus siculus spicatus.

This is *Achyranthes argentea* Lam., a variety of *A. aspera* L. observed in China by Staunton and others.

28. *Persicaria chinensis*; folio subtus albido, Musei nostri 950.

This resembles our Arse-smart, but the leaves underneath are very white and soft.

29. *Triopteris scandens chusanensis*, cordato folio.

This is a twining plant, like our black Bryony, and its leaves not unlike, the capsules resemble the Melianthus, but have only three wings containing membranaceous seed, like those of the Oleander.

30. *Aster Eupatoroides chusanensis*, Hyssopi folio.

The leaves stand alternately on the stalk, which towards the top branches out into many small flowers with little radiated petals. These look at first view like our Eupatorium.

31. *Tussilago chusanensis*, ramosa, folio rotundo, glabro.

This has smooth round leaves about the root at the time of the flowering, and narrow leaves at the stalk, which is branched, each terminating in one flower of the same bigness with ours.

32. *Abrotanum chusanense*, Thalictri folio.

The leaves are deeply jagged at top, generally into 3 or 5 segments. The flowers are extremely small.

33. *Abrotanum chusan.* segmentis foliorum tenuissime serratis.

The flowers of this are as large as the common Southernwood, the leaves finely divided and notched like those of some umbelliferous plants.

34. *Absinthium umbelliferum chusan*, Achoavan folio.

The stalk is round, hoary and slightly furrowed, the leaves somewhat like the next, but less, and more serrated.

35. *Matricaria chusan.* flore albo minore simplici. A Matricaria japonica fl. min. albo simpl. Breyn. prodr. 2. p. 663?

The leaves of this are like Mugwort but less, the flowers scarcely so big as our Featherfew.

36. *Matricaria chusan*. flore luteo minore simplici, *keuk hoa* Chinensibus.

The leaves and flowers are much like the last, the discus is large and yellow as are the petals about.

Probably Pyrethrum (Chrysanthemum) indicum. Cass: sin: 野 菊 花 *Ye kü hua.*

37. *Verbenaca chusan*. Majoranae folio, subtus molli, flavescente.

On each side of every joint come forth longish leaves, some bigger, others less, soft underneath and yellowish. From some of these joints, especially towards the top, come spikes of flowers and seed, after the manner of common Vervain.

38. *Verbenaca chusan*. Persicariae folio subtus pallescente.

The stalk is for the most part 5 square, the leaves grow opposite, by turns crosswise. It bears a long spike of flowers, each with a long tube or neck set in a small turgid calyx.

39. *Mentha chusan*. spicata holosericea.

The stalks of this plant are very hoary and soft, as are its leaves, especially the under side.

40. *Teucrium chusan*. flore singulari pediculo semiunciale insidente.

Each flower stands single on a half inch foot stalk, with 4 long stamina, and a style like the Teucrium Boeoticum.

41. *Teucrium Crocodylianum*. Styracis folio minore. Gas. nat. tab. 34, fig. 11.

42. *Alcea* forte fruticosa *chusan*. folio summo lato, subtus molli.

The leaves are somewhat like our Aspen-tree, very broad at the top, with a small point in the middle, slightly notched, a little rough above, but underneath very soft.

Hibiscus tiliaceus. L.

43. *Rubus chusan*. folio Corchori.

The twigs and footstalks are thorny, the leaves single, sometimes lobated, broad at base, but grow tapering to a very narrow point.

Perhaps *Rubus corchorifolius*. L. of Japan.

44. *Rubi* facie planta *chusan*. folio Altheae acutiore.

The stalks thorny, the leaves grow alternately on short pedicles, and some of them are lobated. At the bottom of each grows a small scaly cone like a bud.

45. *Alectorolophus chusan*. viscosa, Achoavan folio.

This and the next seem very elegant plants, but I dare not meddle with their descriptions until I receive better specimens of them.

46. *Rapunculus* seu *Cardinalis*, forte *Chusan*. Sambuci folio.

47. *Anonis chusan*. pubescens, Lupini facie.

This seems herbaceous, the leaves are very large, somewhat hoary, but the stalks much more, the flowers spicated and large, resembling the yellow Lupine, but have the face and hoariness of the common blue.

48. *Astragalus chusan.*, sinapis siliqua.

These leaves resemble the Sainct Foin, the pods are about 3 inches long, with 2 or 3 swellings, and end blade-pointed like the pods of mustard.

49. *Cowhage chusan.*, floribus parvis ex alis foliorum.

The stalks, young leaves, flowerhusks, and pods have all a rusty hoariness, in the full grown leaves it is much less. From the bosom of these comes a small spike of little flowers, by which and its hoariness it is easily distinguished from all others.

50. *Cytisus chusan*. tetraflorus.

Its leaves are small, finely veined and end in a hair. What is peculiar in this, is to have 4 flowers on a naked or leafless inch foot stalk.

51. *Polygala chusan*. folio subrotundo, spica aphylla.

This is distinguished from others in having broader obtuse leaves, excepting towards the top they are a little pointed and from the middle of each leafy stalk comes out a naked spike of flowers.

52. *Androsace chusan*. Cortusae Matthioli folio. Mus. nost. 858. Gazoph. tab. 33, fig. 8.

Seems to be Androsace saxifragaefolia Bge.

53 *Lysimachia chusan*. Gentianellae folio, flore albo.

This in manner of growing resembles our yellow Loostrife, but the flowers are white, petala less, and more pointed. Its capsule ends in a thread. I saw a branch of this in flower and seed with Mr. Sam. Doody, which Mr. George Loudon had gathered in some garden, I think about town.

54. *Lysimachia chusan*. spicata, Persicariae folio, flore exiguo.

These leaves grow inordinately, are narrow-pointed at base, without footstalks. At the top of the branches grow slender spikes like Arsmart, with small flowers and seed vessels like Flax, but much less.

55. *Ros Solis chusan*. perelegans, caule folioso. Mus. 968.

This is a ve[illegible]uliar sort of Sundew, in having leaves on the stalk[illegible] hi[illegible]rds the top ramify and flower.

Trees.

[illegible]*usan*. foliis acutissimis.

This resembles the Silver-fir but the leaves are somewhat serrated and very sharp.

Perhaps *Abies Kaempferi*. Lindl.

57. *Acer* forte *chusan*. folio minore trifido.

These leaves very much resemble the Acer monspelianum I.B. They are smooth above and glaucous underneath, standing on long slender reddish stalks. The fruit of this and the next I have not yet seen.

Perhaps the Japanese *Acer trifidum*. Thbg., observed also near Ningpo.

58. *Aceris* folio arbor chusan. virgulis spinosissimis.

Its young branches are reddish and very full of brier-like thorns, amongst these leaves inordinately grow, the base of each pedicle leaving an impression like a V consonant on the stalk. The leaves have very much the face of the common great Maple or Sycamore with long pedicles, whose base agrees with the branches.

59. *Alaternus chusan*. Arbuti folio. Gazoph. tab. 36. Thea chusan. floribus majoribus, folio Alaterni serrato Mus. nost 983.

By its leaves and flowers I at first took it for a Tea, but havin lately received it in berry, I find it to be another family. The leaves are stiff, serrated, and pointed, generally thickest towards the tops of the branches. From the bosom of these and below grow many small flowers close to the stalk, which are succeeded by little berries, that are both calyculated and pointed.

60. *Arbor chusan*. *Frangulae* folio majore subtus albido molli.

Although I have not yet seen the flower or fruit of this tree, yet I could not omit it, because its leaves are very distinguishable from any that have yet come from this island. They seem, especially the young ones, to have the texture and face on the upper side of our Frangula or Alderberry, yet somewhat softer, but its peculiarity is underneath, in being white, softish and having its middle vein spongy, and towards the stalk rusty coloured, as are its younger branches.

61. *Baccifera chusan*. Caryophy lliaromat. folio, Patsjotti flore.

The leaves resemble those of cloves, but are somewhat thicker, generally about 1½ inch broad and 3 long, growing alternately. From the bosom of each come 3 or 4 pentapetalous flowers somewhat like the Malabar Patsjotti (Hort. malab. vol. 5.) each filled with large curled like apices ending pointed. These are succeeded by black berries set in a small 5 starred calyx, its point ¼ of a inch, each standing on a half inch foot stalk. Out of one berry I took 11, from another near 20 small shining brown seeds, of different shapes from their lying together.

62. *Baccifera chusan.* Ligustri facie.

Its larger woolly twigs are smooth, cinereous and speckled, the smallest woolly, the leaves grow by pairs, at the top come the flowers, loosely spiked, each in a small cupped calyx, the berries less than currants, black with a bluish cast, each on a very short footstalk and in an undetermined cup, which seemed to want a part on one side. In each berry is one large oval kernel.

63. *Buxus chusan.* folio praelongo.

This has the face and the texture of the common Box, but the leaves are longer, very narrow at the base, broadest near the middle and blunt at the end.

64. *Buxi* affinis *Emuyaca*, folio rugoso.

The twigs are reddish and rough, as are the under sides of the leaves, but smoother above. They stand on very short footstalks and have this particular, that the upper half of each leaf is somewhat lobated or largest. At the ends of the branches grow commonly two or more rough capsules gaping like the Fagaras. Each of these contains 1 or 2 black oval shining seed somewhat bigger than an Oat.

65. *Camphora officinarum.* The Camphire tree.

It is very well figured and amply described in Breynius centuria (in 1678) and first Prodromus.

66. *Castanea chusan.* folio fere serrato, subtus glauco.

The twigs are blackish with many small warts, the leaves grow inordinately, on short pedicles, most of them more or less thorny, dented, and some smooth. Underneath they are glaucous and somewhat soft.

67. *Coccifera chusan.* Coryli folio, floribus exiguis racemiferis. Gazoph. tab. 36, fig. 7.

Its twigs are speckled, the leaves of different magnitude and breadth, lightly serrated, standing on an inch footstalk. At the top of each twig grows a small racemose spike of little flowers, which are succeeded by dry berries, growing like currants.

Cocciferae I[illegible] trees and shrubs, as have dry berries like the Coc[illegible] in opposition to those, that are moist, as goose [illegible]

68. *C*[illegible]*a*, folio marginibus crispis.

The [illegible] is furrowed irregularly like Elder, its leav[illegible] and shap[illegible] a Willow Bay, but peculiarize th[illegible]ing the[illegible] unevenly inwards, which [illegible]ide a[illegible] them seem curled. Their [illegible]arce [illegible]occa, or dry berry, like the

Allspice or Jamaica Pepper, is set in a 4 or 5 starred calyx in a loose cluster, each on an ½ inch footstalk. Between the outward skin and kernel, which is solid and very hard, is but little space.

69. *Crista Pavonis Chinensis*. Abrus folio. *Bo ya hoa* Herbar. nost. Chin. tab. 2, fig. 4.

Hoa in the Chinese language signifies a flower. The leaves are much less and narrower than the American kind, otherwise in its spikes, flowers and way of growing it very much resembles it.

Crista Pavonis is Adenanthera pavonina L. Lam. Enc. Bot. II 76 mentions it as a native of China. Dr. Hance has observed it in Hongkong.

70. *Cupressus chusan*. Abietis folio. Gazoph. Tab. 6. fig. 3. Where you may with its figure see a description of its leaves and seed.

It bears its cones single at the end of each branch; the scales of these, when they are open or cracked, are serrated and rugged.

As we have stated above (Gazoph. l.c.) this is Cryptomeria japonica. Don.

71. *Euonymo* affinis *chusan*. Fraxini folio, semine nigro.

The leaves grow opposite, and generally 3 pairs tailed, i.e. one at the end. The footstalk is very short and next the tail scarce any. The fruit grows in clusters, each husk rugose, including one black shining seed.

72. *Fagara Emuyaca* Fraxini folio.

This is distinguished from the next in having much broader leaves. They grow opposite and are much like the Ash. The berries are about the bigness of Pepper and grow in small clusters. The tender shoots and first sprouts are prickly, in the more grown they are not so discernable. I have not as yet observed any prickles on the leaves of this kind except in its first shoots, which are very small and wear off as they grow older.

I call *Fagarae* those trees and shrubs, whose berries split like those figured by Garcias ab Horto, Gerard, Parkinson, Clusius, etc. There are also these peculiarities, which generally attend this tribe, viz., the branches are prickly and often the leaves on the underside and middle rib, and sometimes on both sides and the lesser veins. The berries split in the middle and discover a black shining seed, the outer skin rough, tastes hot and spicey. The leaves in all I have yet observed are perforated like St. Johns wort, Orange leaves, Myrtle. The Hercules and prickly yellow woods of the W. Indies are of this family.

The genus to which the Fagarae of the ancient botanists belong is now called *Zanthoxylum*. Lin.

73. *Fagara chusan. Fraxini* folio angustiore.

The leaves of this are not only narrower than the last, but prickly underneath and the prickles are very thick set on the branches and between the leaves.

74. *Fagara chusan. Rhois* virginianae folio, caule alato. *What chaw* in Chinese. Gazoph. tab. 36, fig. 8.

These leaves very much resemble the Virginian Sumach, with a winged or welted stalk, with lightly serrated transparent notches. Dr. Sloan has a fair specimen of this in fruit, which ripens in October.

As has been shown above, this seems to be Zanthoxylum Bungei. Pl. sin: 花椒 *hua tsiao.*

75. *Frutex chusan. Fagi* folio, fructu sulcato.

This very much resembles No. 926 Musei nostri, but is in all parts much larger, especially its leaves, which are very like the Carolina plant at No. 915. Its fruit grows naked at the top of the branches from a reversed calyx, and is sulcated like the capsule of an Adhatode.

76. *Gelseminum chusan.* folio Betae hirsuto.

The leaves somewhat like Beet, but hoary, the flower is leaved, in shape much resembling Nerium. The apices on each stamen seem double headed, the calyx is quinquefied and hoary. It grows spikated, as I observed in a very large specimen amongst Dr. Sloane's dry plants.

77. *Hedera arborea* C. B. 305. 1.

I can see no difference between this and our common Tree Ivy. (*Hedera Helix* L. var. *arborea*).

I may observe that among Cantor's Chusan plants *Hedera Helix.* L. is mentioned.

78. *Spurge Laurel.*

Pet. means *Daphne laureola.* L.—Fortune has gathered D. *Fortunei* Lindl. in Chusan.

79. *Lycium chusan.* Pruni minoris folio.

The twigs of this end in a thorn, the leaves are like the slow but less-finely serrated, growing inordinately on very short stalks. The berries are black and wrinkled like pepper and of that bigness. They stand on a ¼ inch footstalk in a small round calyx. Under the thin outerskin lies one or two kernels.

An undetermined species of *Lycium* is noticed in Cantor's collection. L. *chinense.* L. has been observed in North-China as well as in the South.

80. *Mandaru forte chusan.* folio acuminato, alte bifido.

The leaves which are all of this plant I have yet seen, seem to be of the Malabar kind of Mandaru. The leaf is deep cut and glaucous underneath.

Mandaru is *Bauhinia*. 3 species of it are known from Southern China viz. B. *glauca* Wall., B. *Championi*. Benth., B. *chinensis* Vogel.

81. *Mori* facie *chusan*. folio subtus molli ferrugineo.

82. *Ou tum chu*. P. Le Comte. *Gou tum shu* Herb. nostr. Chin. tab. 6.—Gazoph. tab. 27. folio trifido, petalis bacciferis.

This is a wonderful tree and very particular in the product of its berries, which I take to be the fruit. The flowers grow separate from the leaves in a large loose or sparse tuft, after the manner of Fraxinella or Dittander, from the larger stem each little one has many flowers, composed of 5 broad green petals or leaves like those of our Adderstongue, every one standing on ½ inch pedicle starwise. On both the edges of these grow one or more stalkless berries, of the bignes of Holy, rugged now dry. I opened one of them. A large white cavity and a small decayed substance only remained in it.

Petiver gives a correct description of Sterculia platani folia. Cav. (see above Le Comte), only he takes the spreading follicles of the fruit for flowers.

83. *Paliurus Emuyaca major* folio rotundiore.

This seems to differ from our European sort in having its leaves much larger and round.

Probably Paliurus Aubletii. Shult. which has been observed in South China and Japan.

84. *Palmae Christi* vulgaris facie, forte *Chusan*. caulibus et foliis pubescentibus.

Very near the basis of the footstalk of each leaf it has 2 long and very narrow threadlike auricles.

85. *Pimenta Chusan*. folio Alaterni. Gazoph. tab. 26. Thea chusan. floribus minoribus, folio Alaterni cuspidato. Mus. nostr. 984.

Its leaves stand on short footstalks, they are pointed, stiff and somewhat notched. From the bosom of these and at the top of the branches come forth many small flowers, full of stamina like the Tea but much less, which made me conclude it was of that family. But Mr. Cunningham has since sent it me in fruit, which I find a small dry berry of an oval bottled shape, coronated somewhat like a clove.

86. *Populi facie* chusan. folio subtus molli ferugineo.

This has the shape, thickness and softness of Abele leaves, but instead of white is rusty coloured underneath.

87. *Quercus chusan*. Castaneae folio pubescente.

The stalk and the underside of the leaves are hoary. Its catkin or julus round and echinated, as Dr. Cunningham says, but its acorn small and smooth.

Quercus chinensis Bge. of North-China has leaves resembling those of the chestnut.

88. *Rhamnus Emuyacus* maritimus, flore coeruleo.

The leaves like Sea Purslain but smaller and nearly stalkless. From them towards the top of the branches come 2–3 pentapetalous flowers set in a like divided calyx. The footstalks of some of them are near ½ inch.

89. *Rhus Emuyaca* folio serrato subtus molli, rachi alato.

Some of these leaves are broader and more or less serrated than others. The stalk is larger or smaller winged as the twigs are older or younger. Mr. Cunningham says they eat the berries which are sour and have a dew on them. He further observes, that from the broken branches there issues out a turpentine like balsamic liquor.

Perhaps *Rhus semialata* Murr. which is found in North-China as well as in the South, or *Rhus chinensis*. Mill.

90. *Ricinus chinensis sebifera*, Populi nigrae folio. Gasoph. tab. 34, fig. 3. Mus. nost. 965. *Kieu-yeu* P. Martini in Atl. sin.

The leaves grow alternately on long slender footstalks, some of them much extended in the middle and very sharp pointed. The flowers are yellow, mighty small, and grow in a slender catkin like those in Hasel. The fruit is about the bigness of a middling nut, smooth, blackish, and trisulcated, opening into 3 parts, discovers as many white seeds, from whence and its kernels, I suppose, the suet or fat is produced, each being covered with a white fatty body, under which is a brown hard shell, containing an unctuous kernel, which by bruising turns almost wholly to an oil.

Mr. Sam. Brown first sent me this some years ago from China, since which I have received it from Emoy and Chusan. There are two young trees of this now growing, September 27. 1703, in the Charterhouse, raised this year by Mr. Cole Gardiner.

The tree here described is Stillingia sebifera Michx. repeatedly spoken of in this paper.

91. *Ricinus* forte *chusan*. *Tiliae* folio.

These leaves grow alternately on footstalks, some above 2 inches long, of the bigness of the Mulberry and Lime tree, but not serrated. At the top grow spikes of thrummy flowers, like the common Palma Christi, but closer set. I hope the next ship from Chusan will bring me it in fruit.

92. *Thea chinensis* vera potulenta. Gasoph. tab. 21, fig. 10. *Chaa* chinensibus.—Bontius Hist. nat. Ind. or p. 88, fig. The principal authors, who have given us accounts of the Tea plant are: Bontius, Breynius, Dufour, Perklin, Pomet, Ray, Tulpius.

93. *Thea chinensis*, Pimentae jamaicensis folio, flore rosaceo simplici: Gazoph. tab. 33, fig. 4. *Swa Tea* seu *Cha hoa* Chinens. Herb. nostr. Chinense. tab. 6, fig. 11.

This plant has a very beautiful flower, some being single and of a deep red, others white and some striped, there are also of these colours with double flowers. The Chinese and the Japanese keep them as an ornament in their gardens. The young flower bud is scaled like a cone. The fruit is about the bigness of a chestnut, somewhat triangular, including under a very thick woody shell several seeds disposed into 3 cells. It flowers in February.

According to Lammarck Enc. Bot. I. 572, this is Camellia japonica. L. Petiver is the first botanist, who describes the plant.

94. *Thymelea chusan*. Cydoniae folio.

The flowers are like Jasmin but 4 leaved, their tube or neck hoary and about ¼ inch long.

95. *Thymelea chusan*. Myrti rom. folio.

96. *Vitis chusan*. trifido folio.

97. *Vitis chusan*. folio parvo molli.

CHINESE PLANTS DESCRIBED AND DEPICTED BY L. PLUKENET.

As has been stated above, Plukenet described in his *Amaltheum botanicum*, probably in 1703 and 1704, about 400 Chinese plants almost all it seems from Cunningham's collection. About 180 of them he represented by good drawings in his Phytographia, pars III. The plants in the Amaltheum are arranged alphabetically and the Chinese plants intermixed with Indian and American species and plants of the Cape. I shall extract in the following pages the diagnoses of all the Chinese plants of which engravings are found in the Phytographia and also of the greater part of those only described, omitting however in many cases the detailed descriptions. Plukenet generally quotes Cunningham's original descriptions. The pages quoted refer to the Amaltheum, the plates to the Phytographia, vol. III.

Abies major sinensis pectinatis Taxi foliis. subtus caesiis, conis grandioribus sursum rigentibus, foliorum et squamarum apiculis spinosis. P. 1. Tab. 351, fig. 1.

Cunninghamia sinensis R. Br.

Abies maxima sinensis pectinatis Taxi foliis, apiculis non spinosis. P. 1. Tab. 351, fig. 2.

The drawing seems to represent a Cephalotaxus.

Abrotanum mas sinicum latiori folio, cum pulchris corymbis. P. 1. Tab. 353, fig. 1.

Abrotanum sinense latiori et multifido Artemisiae folio, rigidiusculis apicibus spinularum aemulis insignito, cum parvis corymbis. P. 1. Tab. 353, fig. 4.

Abrotanum tenuifolium dense fruticosum, cum exiguis corymbis. Insula *Cheusan*. P. 1. Tab. 353, fig. 6.

Abrotanum sinense tenuifolium, corymbis majoribus elegantissimis. P. 2. Tab. 351, fig. 5.

Abrotanum sinense tenuissimis longioribus foliis corymbis perexiguis. P. 2.

Abrotanum mas Sinensium foliis et corymbis minutissimis. P. 2.

Absinthium sinense, romano haud absimile. Ex insula una de *Crocodylis*. P. 2.

Absinthium maritimum Sinarum, Lavandulae folio, pulchrioribus corymbis inodorum, sapore aromatico. Abs. folio argenteo vel incano, floribus plerumque singularibus lutescentibus. Cunningham. *Cheusan*. Oct. floret. P. 3. Tab. 353, fig. 5.

Tanacetum chinense A. Gray. (Maxim. Decad X.)

Acinos multis effigie, procumbens, ex caliculorum geniculis radicosa, herba capsularis. Flos coeruleus monopetalus, tubulatus quadrifidus. Folia parva, laevia, subrotunda, ex adverso bina, e quorum alis proveniunt flores. Cngh. *Cheusan*. Floret Oct. P. 4. Tab. 354, fig. 2.

Aconitum minus autumnale *cheusanense*, sin: *Tsou u* dicitur. Floret Sept. Oct. P. 5.

In Peking A. **Kusnetsowii**. Rchb. blue flow. is called 草 烏 頭 *Ts'ao wu t'ou*. Fl. Sept.

Alcaea indica Sinarum. Frutex arborescens flore amplo luteo Malvaceo, fundo purpureo, fructo villoso, in 5 loculamenta diviso semina fusca reniformia. Folia fert ut Populus alba. Fl. Junio, semen perficit Sept. Est species Ketmiae. Cngh. P. 6. Tab. 855, fig. 5.

Hibiscus tiliaceus. L. (Gieseke.)

Alcea sinica Manihot, fructu pyramidato, hirsuto, quinquecapsulari, seminibus reniformibus, foliis digitis longioribus, sin: *Tchu whei* dicitur. Cngh. P. 7. Tab. 355, fig. 2.

Hibiscus Manihot. L. (Gieseke). By the Chinese name given probably 秋 葵 *ts'iu k'ui (dsiu kwe* Shanghai.) is intended. In Peking this is the name for *Hibiscus Abelmoschus*.

Alcea olitoria s. Corchorus longiori folio Sinarum. P. 7.

Corchorus capsularis. L. See Lam. Enc. Bot. II 104.

Alni folia arbor e *Chusan*. P. 8.

Althaea fruticosa sinensis, Betonicae folio majore. P. 11.

Althaea fruticosa sinensis, foliis parvis angulosis, seminibus incanis. P. 11. Tab. 355, fig. 3.

Amaranthus sinicus latifolius, spica candidissima. P. 12.

Amaranthus parvus sinensis. Bliti minoris folio, spica laxa virescente tenui, *Addecomogule* Malabarum. P. 12. Tab. 356, fig. 2.

Ambrosiae (forsan) e China Anguriae foliis accedenti, Almagesto 27 similis, ex ins. *Crodil*. An potius *Matricariae japon.* spec. sinica, *keuk koa* Sinis dicta. P. 13.

Anonymos cheusanensis sideratidis folio, fructu Ulmi samaris haud absimili, sed minore. Flos albus minimus, monopetalus quintifidus. Capsula subrotunda, semen unicum, planum et ovatum, instar seminis Sesami continens. Aperto flore protuditur, et adnascitur membrana rotunda, instar squamae, per longitudinem pediculi floris transcurrens, capsulae autem non adnascit, sed latet quasi ad membranae centrum excavatum. Flores e foliorum alis et caulium summitatibus nascuntur, in muscariis dispositi. Folia ex adverso bina, oblonga et leviter crenata. Oct. flor. Cngh. P. 16. Tab. 443, fig. 1.

Anonymos cheusanensis Betonicae folio incano, Chamaecisti flore luteo, praelongo, pentapetalo, fructu Balsaminae foeminae trifariam ab ima parte dehiscente. Sept. fl. Cngh. P. 16. Tab. 360. fig. 2.

Antirrhinum minus cheusanensis, Anchusae folio scabro, flore luteo, ad fundum superius extra et intus purpurastente P. 17. Tab. 358, fig. 1.

Aquilegiae corniculis, Moschatellinae foliis planta pusilla. *Chusan*. P. 19. Tab. 360, fig. 3.

Isopyrum adoxoides D. C. Prodr. I. 48. Lam. Enc. Bot. III. 99. Spreng. Syst II 470. F. B. Forbes in the prov. of Kiangsu (Journ. Bot. 1880 p. 267) Hancock near Ningpo (Maximow. Frag. H. Asiae orient. 1879. p. 3.

Arbor baccifera cheusanensis. Fagi folio, subtus glauco, fructu singulari quadrifido, ad foliorum ortu sessili. P. 20.

Arbor indica chusanensis, Salicis latiori folio, leviter serrato, flosculis ad foliorum exortum, confertim sessilibus. P. 21.

Arbor cheusanensis, Arbuti minoribus foliis, flosculis ad foliorum alas, curtis pediculis deorsum tendentibus affixis P. 21. Tab. 402, fig. 3.

Arbor prunifolia cheusanensis, baccifera, fructu parvo, rotundo, summis ramulis in spicam disposito. P. 21. Tab. 361, fig. 3.

Arbor indica cheusanensis, Salicis odoratae folio, fructu ex alis squamato calyce donato. *Swa tea* Sinensium, flore pleno, albo, rubro et variegato. Sunt variae species Theae Indorum. P. 21.

Camellia japonica. L. V. supra Philos. Trans. 93.

Arbor baccifera cheusanensis, Euonymi foliis undulatis et punctatis, fructu rotundo, parvo, calyculato, rubro, *Oxycanthi* aemulo. P. 21. Tab. 362, fig. 6.

Arbor sinensis, Canellae folio minore, trinervi, prona parte villoso, fructu Caryophylli aromatici majoris, villis similiter obducto. Ins. Crocodil. P. 21. Tab. 372, fig. 1.

Arbor cheusanensis, Fraxini foliis superne dilute virentibus, subtus lividis, summa singulari pinna alas claudente, caeteris multo majore. P. 22.

Arbor sinensis Taxi folio, apicibus obtusis. P. 22.

Arbor cheusanensis baccifera, *Coryli* folio, summis ramulis racemoso. P. 25.

Arbor Sinensium, *Laurocerasi* foliis angustioribus, alterno ordine sitis. P. 25.

Arbor Sinensium Lauri folio *Lei chi*, i.e. Oculum Draconis, fructum ferens; et aliquando *Lung yen* indigenis audit. Michael Boym Flora sin. P. 25. Tab. 365, fig. 6.

Nephelium Litchi Camb. and **N. Longan.** Camb. Plukenet erroneously takes these two species to be identical. V. supra Boym 6. 7.

Arbor cheusanensis, Arbuti foliis serratis. P. 25. Tab. 370, fig. 2.

Arbor cheusanensis baccifera, Frangulae foliis venosa, fructu parvo pyramidali, calyculato, ossiculo oblongo binucleo. P. 25. Tab. 368, fig. 3.

Arbor sinensis sebifera Kieu-yeu. (I omit the detailed description.) P. 25. Tab. 390, fig. 2.

Stillingia sebifera. Michx. See above Phil. Trans. 90.

Arbor sinica Pipa dicta, folio Castaneae haud absimili. Arbor est flore albo rosaceo, plerumque pentapetalo, Ulmariae odore, staminibus apicibus farinaceis et nigricantibus, donatis. Ex calyce quintifido, lanuginoso et fusco surgit pistillum, quod deinde abit in fructum subrotundum, flavum, coronatum, fraga redolentem, pruni minoris magnitudine, nucleos continentem tres, aliquando duos, raro unicum, membrana communi tenui, ejusdem cum pulpa flavi coloris, et membrana propria fusca involutos. Flores in fasciculis nascuntur. Folia lanuginosa, ex acuta basi oblonga, latiora et serrata, versus sumitatem, et in acumen desinentia. Nov. floret, fructus Majo maturescit. Cunningh. P. 26. Tab. 371, fig. 2.

Eriobotrya japonica. Lindl. See above Boym. 11.

Arboris Pipa altera species, non serrata, foliis viridibus, scabris. P. 27.

Arboris Pipa species altera, Quercinis foliis, *Cheusanica*. P. 27.

Arbor Lauri folia, floribus minimis ex albo flavescentibus. *Chusan*. Flores sunt odoriferi, Iridis Florentinae odorem spirantes, monopetali, quadrifidi, ad foliorum alas ex thecula cauli appressa, fasciculatim nascentes, pediculis longioribus (unde penduli apparent) stylo brevissimo, duobus staminibus brevissimis stipato; e calice prodeunte, qui abit in fructum. Sept. flor. A Sinis *Quei hoa* nuncupatur. Cungh. P. 27.

Olea fragrans. Thbg. V. supra Martini 20.

Eadem *Arbuti* foliis serratis. P. 27.

Arbuscula baccifera sinensis, Lauri folio, ad ortum foliorum bacca singulari, nigra, longo pediculo innixa. P. 27. Tab. 362, fig. 2.

Arbuscula sinensis; Viburni foliis. *Chusan*. P. 27.

Arbuscula cheusanensis, Phillyreae alternis foliis, baccis Myrti coronatis. *Myrtillus grandis cheusanensis*. P. 27.

Arbuscula cheusan. Nerii splendentibus foliis, aversa parte medio nervo. plurimum extante, virgulis purpureis. P. 28. Tab. 365, fig. 5.

Arbuscula cheusan. Salicis pumilae angustioribus foliis, hirsutie aurea pubescentibus, fructu parvo, in foliaceo conceptaculo pyramidali obvoluto. An Cysti genus? P. 28.

Arbuscula sinensis. Ulmi minoris folio, fructu nigro, testiculato, dicocco, racematim congesto. Ins. *Crocodil*. Kilcola Tsjetti. H. malab. X. tab. 57.—P. 28. Tab. 371, fig. 6 et 4.

Arbuscula baccifera sinensis, Lauri folio minore, fructu corymboso, summo capite coronato. *Tau cudda muram* indigenis dicta. P. 28.

I may observe that this is not a Chinese, but rather an Indian name.

Arbuscula cheusanensis, Pyracanthae majoribus foliis margine asperatis, spicas foliorum et seminum Passerinae minoris haud abludentium, ex alis emittens. P. 28.

Arbuscula Myrtifolia sinensis, foliis leviter crenatis, fructu calyculato, pyramidali. *Chusan*. P. 29.

Arbuscula sinensis Myrti majoris folio, vasculo seminali hexagono, ad singulos angulos alis foliaceis munito, quae porrectae, vasculi coronam efformant. *Um ki*, alias *u muy* Sinensibus dicta. Hujus semina tinctoribus inserviunt, iis enim ab indigenis optime tingitur, nobilis ille color, quem Escarlatinum nostrates vocant. Flos rosaceus albus, hexapetalus. Cngh. P. 29. Tab. 448, fig. 4.

Lour. Fl. cochin. 183 identifies this with Gardenia florida L., which at Shanghai is called 黃梔 *huang (wang) chi*

Arbuscula Sinarum folliculifera, Hypericis frutescentis foliis, folliculis longis, plurimis isthmis donata. P. 30.

Arbuscula cheusanensis Aceri Monspessulani folio, subtus rore coeruleo tincto, longo pediculo insidente. P. 32. Tab. 366, fig. 3.

Perhaps the same as Phil. Trans. 57 (see above) *Acer trifidum* Thbg.

Arbuscula sinensis Cisti minoris folio rigidiore parvo subrotundo, in brevius acumen desinente alternatim posito. Flores candicantes ex 5 vel 6 petalis seu laciniis angustis longioribus compositi, calyx quadrifidus. Flores in summitate ramulorum bini vel terni. Fructus ovatus, parvus, bivalvis, villosus, glandis ad instar calyculatus. Bina semine ovata. *Cheusan*. Cngh. P. 32. Tab. 368, fig. 2.

According to D.C. Prodr. IV 269 this is Hamamelis chinensis R. Br. observed by Abel (1818) in China.

Arbuscula baccifera spinosa, Persicariae foliis densis, triphylla, Lentisci modo rachi medio alata, fructu parvo, monopyreno, aromatico. *Wha tchaw* Sinensibus dicta. P. 33. Tab. 391, fig. 2.

Zanthoxylum. V. supra Philos. Trans. 74.

Arbuscula sinensis, Alaterni foliis et facie. *Chusan*. P. 33. Tab. 362, fig. 1.

Arbuscula sinica, baccifera, folio parvo, subrotundo, solidiori, Caryophilli aromatici fructu, rotundo, monopyreno et insipido. P. 34. Tab. 362, fig. 4.

Arbuscula sinica foliis argute denticulatis et incanis, Verbasci nigri Salvi folii aemulis, flosculis numerosis, ex foliorum alis. P. 34. Tab. 450, fig. 1.

Arbuscula cheusanensis, Laurinis pallidioribus foliis, ad summum ramulorum, in spicis plurimis erectis, julorum ad instar, flosculos ferens. P. 34. Tab. 369, fig. 2.

Arbuscula sinensis Convolvulacea, Staphylodendri aethiopici folio, lucido, bijugo, margine piloso. P. 34. Tab. 372, fig. 2.

Arbuscula sinica Cynoglossi foliis, incanis, quiddam in ramorum fastigio, foliolis sericeis, confertim stipatis compactile Rosae aemulum pro floribus ferens. Cuningh. In hortis Bonziorium colitur et *Ki heang* nuncupatur. P. 34. Tab. 371, fig. 1.

Arbuscula Sinarum, alternis minoribus foliis, non punctatis, floribus Aurantiae. P. 34. Tab. 365, fig. 1.

Arbuscula Sinarum baccifera, Salicis odoratae foliis glabris, leviter crenatis et laete virentibus, fructu rotundo monopyreno. P. 34. Tab. 369, fig. 1.

Arbuscula Sinarum, alternis foliis Arbuti, saturato virentibus et argute denticulatis. P. 35. Tab. 370, fig. 3.

Arbuscula sinica Rhamni cathartici fere foliis non serratis, fructu albo parvo, bivalvi, in calyce villoso pene immerso, ad foliorum ortus cum pediculis egrediente. P. 35. Tab. 361, fig. 2.

Arbuscula prunifolia sinensis, floribus parvis, pentapetalis, albis, summis ramulis racemosis. P. 35. Tab. 368, fig. 6.

Arbuscula baccifera sinensis, foliis Lauri alternatim sitis, fructu nigro molli, polypyreno, ex alis binatim cum pediculis exeunte. P. 35. Tab. 360, fig. 5.

Arbuscula sinensis Alaterni alternis brevioribus foliis, magis mucronatis, floribus pentapetalis albis, Oxyacanthi aemulis, in ramulorum fastigiis. P. 35. Tab. 362, fig. 3.

Arbuscula sinensis, Alaterni alternis, longioribus foliis, fructu Myrti solitario inter ramulos sparso. P. 35. Tab. 366, fig. 1.

Arbuscula sinica, Anonae dulcis folio minore non splendente. Folia alternatim brevissimis pediculis cauli adhaerent et singuli flores e foliorum alis cum brevibus pediculis egrediuntur. Flos est stamineus, minimus, calyce multifido. Fructus compressus, instar seminis Malvae, multicapsularis, plurima semina rubra, in bina serie per circumferentiam includente Cunningham. P. 35. Tab. 368, fig. 1.

Phyllanthus puberus. Müll. var, **sinensis.** D.C. Prodr. XV 2. 307.

Arbuscula cheusanensis, Salicis caprariae folio rigidiore, flore coeruleo, infundibuliformi, quadrifido. Folia ad basin et summitatem acuminata, superna parte viridi, inferna albo virescente, brevibus pediculis insidentibus. Cortice est tenaci. Augusto flor. Cngh. P. 36.

Arbuscula Sinarum Carpini foliis, fructu rubro, baccam mentiente. Flos 5 petalus, exterioribus petalis sub viridibus, veluti adhaerentibus, et 5 interioribus, ex luteo obscuris, ex cujus calyce, parum 5 fido surgit pistillum, quod deinde abit in fructum rubrum, baccae instar rotundum. Folia lanceolata, nervis bijugis, rectis, conspicuis, absque divisionibus, a medio nervo in folii latera protensis. Flores nascuntur in muscariis. Oct. floret. Cnghm. P. 36.

Artemisia leptophyllos Sinarum. Ins. *Crocodil.* P. 37. Tab. 353 fig. 2,

Artemisia chinensis, cujus mollugo *moxa* dicitur. Plukenet's Almagestum 50, tab. 15, fig. 1,

This is according to Lamarck. Enc. Bot. Suppl. I. 406. **Artemisia vulgaris** L. var. **indica.**

Aster cheusanensis Tripoli nostratis aemulus et forte idem. P. 40.

I may observe, that **Aster Tripolium.** L. is found in North-China.

Aster cheusanensis coeruleus, foliis subrotundis impense scabris, alternatim positis. Flores ex foliorum alis solitarii. Discus ex flosculis luteis multifidis, stamine bicorni praeditis, et corona ex semiflosculis coeruleis compositus est. Calyx squamosus, et semina pappis instructa. Oct. flor. Cngham. P. 41. Tab. 373, fig. 3.

Aster cheusanensis, Virgae aureae scabris foliis, floribus coeruleis. Discus ex flosculis plurimis flavescentibus, corona vero ex semiflosculis coeruleis componitur. Flores insident cauliculis foliolis donatis, e foliorum alis prope summitatem egredientibus. Semina teretia, minuta, pappis instructa, et calyce squamoso comprehensa. Folia oblonga, acuminata, rigida, crenis raris notata alterna. Oct. flor. bipedalis. Cnghm. P. 42, Tab. 374. fig. 3. Idem floribus albis.

Aster cheusan. Virgae aureae alternis foliis, summo caule flore parvo singulari. P. 42. Tab. 373, fig. 4.

Aster cheusan. luteus, Lysimachiae siliquosae foliis, inferne villosis. Flos luteus, radiatus, discus flosculis luteis, corona quoque lutea. Calyx squamis longioribus. Folia alterna, oblonga, acuminata, superne pallide viridia, inferne incana et villosa. Sept. et Oct. flor. Cnghm. P. 48.

Aster luteus cheusan. Bliti majoris folio, paucioribus floribus, summo caule brachiato. P. 43. Tab. 373, fig. 5.

Aster luteus cheusan. Botryos folio, plurimis floribus, summo caule brachyato. P. 43. Tab. 410, fig. 3.

Auriculae Ursi affinis *(Androsace* dicta.), *sinensis*, Saxifragae aureae foliis, pediculis longis insidentibus. P. 43. Tab. 440, fig. 6.

See above Philos. Trans. 52.

Blitum Kali dictum sinense maritimum, album vermicularis et crispatis comis. Chamaepitys maritima. *Chusan*, Cnghm. P. 45. Tab. 375, fig. 1.

Calamintha sinensis, Ocymi folio et odore Sisymbrii. P. 48. Tab. 377, fig. 1.

Calamintha montana cheusan, Origani folio, odore Pulegii. P. 48. Tab. 377, fig. 6.

Calamintha cheusanensis, Pulegii odore, dentatis foliis, floribus dilute coeruleis ex longo, ramoso, brachiato caule prodeuntibus. P. 48.

Campanula sinica, Ocymi majoris folio, flosculis ad summitatem perexiguis. P. 49.

Cannabis sterilis a foemina nostras e regione Sinarum.

Cardiaca angustiori folio sinica, flore coerulescente et purpurascente. P. 50. Tab. 377, fig. 5.

Cardiaca sinensis, Ballotae foliis ex ins. *Crocodil.* P. 50.

Carduo Cirsium Sinarum, foliis magis spinosis, capitulo singulari. P. 51. Tab. 382, fig. 3.

Cassiae Cinnamomeae, Myrrhae odore Phytograph. similis ex insula *Cheusan*. P. 52. Tab. 381, fig. 2.

Centaurium minus, vulgari similis, ex insula Sinarum *Ukui san*, mense Junio collectum. P. 53. Tab. 381, fig. 1.

Centaurium minus Ascyroidis folio alterno, trapezii forma transparenti. *Cheusan.*. Huic folia ad caulem non sunt bina, sed alterno ordine sita. P. 53. Tab. 381, fig. 4.

Centaurium minus Cheusanense spicatum. Aug. flor. P. 53. Tab. 381, fig. 6.

Cerasae Hottentottorum, (quoad folia) haud absimilis, fructu coronato. *Cheusan*. P. 54.

Chrysanthemum sinicum Bellidis majoris folio, floribus parvis, in ramulorum fastigiis. P. 56. Tab. 383, fig. 6.

Chrysanthemum minus, Anchusae foliis, floribus parvis *Cheusan*. P. 56. Tab. 382, fig. 1.

Chrysanthemum sinense procumbens, Hyssopi foliis, pilis tenuissimis, margine fimbriatis. P. 56.

Chrysanthemum, Cannabinae aquaticae latiore folio indiviso. *Chusan*. Bidens seu Eupatorium aquaticum, folio serrato non diviso, flore flosculoso luteo, plurimis flosculis constante multifidis, embryoni insidentibus, foliolis membranaceis intermediis, et calyce folioso, cum foliolis membranaceis composito, comprehensis. Semen in duos desinens aculeos. Spt. flor. Folia bina, oblonga, ad basin et summitatem in acumen desinentia. Sinice: *mok teu tsaw*. Cnghm. P. 56.

Chrysanthemum, Conyzoidi Cannabinae simili, capitulis deflexis Almag. bot. 101, seu Asteri cernuo Fab. Columnae proxime accedens. *Cheusan*. Cnghm. (descriptio). P. 57.

Chrysanthemum sinicum minus angusto Calendulae folio, flore octopetalo luteo. P. 57. Tab. 383, fig. 5.

Cichorio affinis *Lampsana sinica*, Mentastri foliis, calyce fimbriato, hispido, flore luteo. Sin. *Hi him tsaw*. Sept. fl. Cnghm P. 58. Tab. 380, fig. 2.

Sigesbeckia orientalis. L. 豨薟 hi hien. I have omitted Cunningham's detailed description.

Cistus Rhododendros, sericeis foliis *cheusanensis*. P. 59.

Cistus sinica, Cisti Populi nigrae majoris foliorum aemula. P. 59.

Cistus minor cheusan. Salicis pumilae folio angusto et incano. P. 59. Tab. 379, fig. 2.

Cistus humilis seu Chamaecistus flore albo, vulgari similis, ex ins. *Crocodil*. P. 59.

Clematis cheusanensis, Bucananthi majoris fere foliis solitariis, ad margines spinosis serris, spica florum ampliori, ex foliorum alis. Planta repens flore purpureo violaceo. Sept. flor. in saxosis proveniens (I omit Cunningham's description.) P. 60. Tab. 384, fig. 1.

Clematis arborea, summo folio bicorni. *Chusan*. Hort. Malab. VIII. tab. 30, 31. *Naga mu valli*. P. 60.

The name here quoted is an Indian name for *Bauhinia scandens*. Comp. also above Philos. Trans. 80.

Clematis minor maritima Sinensium. P. 60.

Clinopodium sinense nostrati simile, sed minus. P. 60.

Clinopodium Origano simile. *Cheusan*. P. 61.

Clinopodium cheusanicum Chamaedryos folio majore. P. 61. Tab. 384, fig. 4.

Clinopodium parvum sinicum, hirsutis Majoranae foliis coronatum. Majoranae species, flore coerulescente labiato, cujus labium superius surrectum est, subrotundum bifidum, inferius vere tripartitum, foliis parum villosis. Sept. flor. Cnghm. P. 61. Tab. 380, fig. 4.

Gieseke identifies this with *Cometes alterniflora*. L., an Indian plant.

Cocculi orientalis frutex convolvulaceus, orbiculatis foliis, prona parte villosis. *Ins. Crocodil*. P. 61. Tab. 384, fig. 6.

Convolvulus minor sinensis, longiore hirsuto folio, flore albo parvo. P. 64.

Convolvulus argenteus, rectus Sinarum, spicae folius. P. 64.

Coriotragematodendros Sinarum, foliorum marginibus magis serratis. P. 65. Tab. 446, fig. 7.

Corni similis *cheusanensis*, bacca parva calyculata, striata, rubra, e foliorum alis binatim egrediente. Folia ex adverso bina subrotunda, acuminata. Baccae rubrae, umbone preditae binae, brevi pediculo et calyce integro insidentes, in pulpa molli et lutescente semina compressa, Sesami instar continentes. Sept. collegit Cnghm. P. 66. Tab. 385, fig. 5.

Crotalaria cheusanensis, spicae foliis argenteis, siliquis propendentibus glabris, calycibus villis ferrugineis obductis in totum fere immersis. P. 67.

Cupressus cheusanensis, Juniperinis arcuatis foliis, clavis galbulorum eleganter cristatis. P. 69. Tab. 386, fig. 3.

Cryptomeria japonica. Don. See above Philos. Trans. 70.

Doronicum Tussilaginis folio, flore magno singulari. *Chusan*. P. 71. Tab. 390, fig. 6.

Tussilago japonica. L. (Giseke). Comp. above Philos. Trans. 81.

Elychrysum Lithospermi foliis. Ins. *Crocodil*. P. 72.

Elychrysum angustifolium sinicum, incanis foliis, floribus parvis sulphureis in capitulum congestis. P. 72.

Equisetum nudum non ramosum, asperum, fimbriis ciliaribus ad genicula cayaneis. Ins. *Crocodil.*

Eryngii species sinica, folio fere plano, trilobato et crenato, sin. *sha sin* dicta i.e. in arenis nascens. Ins. *Tau whey san.*

Euonymo nostrati similis, sed multo latioribus foliis. Arbor fragilis foliis svbrotundis acuminatis et serratis, flore tetrapetalo, ex albo virescente, staminibus quatvor brevissimis, totidem apicibus purpureis donatis, calyce 4 fido, e quo surgit pistillum, quod deinde abit in fructum quadrangularem membranaceum, in 4 loculamenta divisum, singula continentia duo grana rubentia, sibi invicem appressa, foliis ex adverso binis, latioribus, serratis, in mucronem desinentibus. Fructu maturo, capsula purpurascit. Oct. perficitur. Cnghm. anno 1702. mense Novembri ex insula *Pu to* (east of Chusan.) detulit. P. 75.

Euonymo affinis *cheusan*. Frutex Laureoli foliis, solidioribus, tricapsularis et quadricapsularis, P. 76. Tab. 390, fig. 3.

Euonymo affinis Sinensium, tricapsularis, foliis subrotundis Lauri. Ins. *Crocodil.* P. 76.

Euonymo affinis Sinarum quadricapsularis, subrotundis, rigidis foliis dentatis, foliis et ramulis ex uno puncto quaternis P. 76. Tab. 392, fig. 3.

Euonymo affinis *cheusanensis*. Arbuscula staphylodendri nostratis folio, fructu gemello, bicapsulari. P. 76. Tab. 390, fig. 5.

Euonymo affinis Pyracanthae foliis. *Cheusan.* P. 76. Tab. 390, fig. 4.

Euonymo affinis aromatica s. *Zanthoxylum spinosissimum*, Fraxini angustiore folio punctatum. *Cheusan.* P. 76, Tab. 392, fig. 1.

Euonymo affinis aromatica s. *Zanthoxylum* latiore Fraxini folio conjugato, minus spinosum. *Chusan.* Frutex aromaticus arborescens, cujus truncus et rami spinis brevibus et tuberosis horrent, foliis Fraxini alatis, leviter serratis, perforatis, minime spinosis. Fructum fert in racemis unicapsularem laevem, virescentem et punctatum, seu perforatum, acerrimum Camphorae gustum sapientem, qui bifariam dehiscens, in apice semen ostendit unicum, nigrum, splendens, hilo angusto et obscuro notatum. Rami sunt medullosi et cavi, instar Sambuci. Oct. fructum perficit. Idem forte cum Herculis arbore nobis allata at ei quam proxime cognata. Forte Piperifera arbor Le Comte. P. 77.

Euonymo affinis *aromatica* s. *Zanthoxylum* Fraxini latiore folio sinuoso, medio nervo utrinque spinoso. Ins. *Crocodil.* P. 77. Tab. 449, fig. 7.

Euonymo affinis *aromatica* s. *Zanthoxylum* spinosum, Fraxinellae foliis *cheusanicum*. Frutex aromaticus, spinosus, spinis brevibus, foliis laevibus, perforatis, brevibus, in acumen desinentibus, costae per conjugationes innascentibus, impari claudente. Fructum fert unicapsularem, rotundum, scabrum vel verrucosum, acerrimum Camphorae gustum sapientem qui bifariam dehiscens, semen ostendit unicum, nigrum, splendens, nulli fere gustus, nisi oleosi. Fructus in racemis, Oct. maturescunt, sin: *Hoa tchaw* nominatur et vice Piperis utuntur. P. 78. Tab. 393, fig. 2,

According to Hooker and Arn. voy. Beech. 175 this is Zanthoxylum nitidum D.C.—Comp. also above Phil. Trans. 74.

Euonymo affinis *aromatica* seu *Zanthoxylum* sinicum spinosum, Cynorrhodi foliis et facie. Cunningh. P. 78.

Euonymo affinis *aromatica* s. *Zanthoxylum cheusanense*, spinosum minus, Rosae Pimpinellae foliorum aemula, cujus fructus forsan sunt Fagarae Clusii minores. Frutex aromaticus, spinosus, minor, foliis alatis non perforatis, leviter serratis, costa spinosa. Fructum fert ad ramorum summitates in fosciculos congestum, unicapsularem, laevem, virescentem et punctatum seu perforatum, gustus camphorati. Semen unicum, nigrum, splendens. Oct. fructus maturescit. P. 79. Tab. 391, fig. 3.

On the same page an account of *Tea* is found, which I omit.

Eupatoria Conyzoides sinica, Baccharidis folio rarius crenato, summo caule ramoso, floribus parvis coronato. P. 79,

Eupatorium sinicum, Leonuri africani foliis, flore ex albo coerulescente. Folia oblonga, serrata et acuminata. Florem fert album, flosculosum, plurimis flosculis companiformibus quintifidis constantem, ex quibus singulis longum surgit capillamentum, album, bifidum, quibusdam brevibus capillamentis nigris circumdatum, extra flosculum non prominentibus, unde flos apparet, quasi ex albo coerulescens, et calyce longo, tereti, et squamoso comprehensis. Semen nigrescens pappis instructum. Sept. floret. Cnghm. P. 82. Tab.392, fig, 2.

Eupatorium Conyzoides sinicum, Tarraconis folio, capitulis argenteis. Flos radiatus, discus e flosculis luteis, corona vero e semiflosculis albis componitur. Calyx squamosus. Folia viridia, longa et angusta. Oct. flor. Cnghm. P. 82.

Eupatorium Conyzoides cheusan. Tarraconis folio, coma aurea amplissima. P. 82. Tab. 395, fig. 3.

Euphrasia sinica Parietariae foliis, Rubiae modo spicata. Flos albens, personatus. Labium sup. acuminatum et brevius, inf. vero tripartitum et longius. E calyce profundo multifido, surgit pistillum, quod abit in fructum seu testam oblongam, bifariam dehiscentem, in dua loculamenta divisum. Flores in spicis nascuntur. Folia ex adverso bina, Teucrii similia. Cnghm. P. 83. Tab. 392, fig. 4.

According to Lam. Enc. Bot. I 629 this is **Justicia procumbens**. L.

Euphrasiae affinis *sinica*, Chamaedryos laciniatis foliis, Botryos instar, floribus purpureis, spicatis, amplis, longo et striato calyce exeuntibus. P. 84. Tab. 394, fig. 2.

Euphrasia Chamaedryos spuriae foliis ex ins. *Chusan*. P. 84. Tab. 396, fig. 4.

Euphrasia minor sinica, Betonicae Pauli foliis, capsula longa, siliquam aemulante. Flos carneus personatus, labio sup. in acumen desinente, inf. vero trifido. Fructus est siliqua teres, bicapsularis. Semina minutissima. Folia bina, opposita, subrotunda, mollia et leviter serrata. Sept. flor. Cnghm. P. 84.

Euphrasia parva Thymi folio, procumbens, seu *Crataegonum minimum* Indorum, *Arrevenar-pundoc* Sinarum. P. 85. Tab. 404, fig. 3.

Fagotriticum erectum Sinarum, Persicariae folio, floribus in muscariis, calyce floris carneo, semine triquetro acuminato, spica floris brevi et multifida, foliis ex latiori basi in mucronem desinentibus, ad nodos alternatim positis, rarioribus. Sept. Oct. flor. *La leou* sinice nuncupatur. Cnghm. P. 86. Tab. 398, fig. 2.

The Chinese name 辣蓼 *la liao* is applied to several species of **Polygonum**.

Fagotriticum rectum sinense, Convolvuli minoris folio ad caulium nodos, appendicibus pilosis auriculato. Persicaria calyce floris albo, flores in ramulorum summitatibus in muscariis disponuntur. Semina fusca, triquetra et acuminata. Folia lanceolata, aurita ex nodis alternatim nascentibus, nodum verum aliud plerumque foliolum subrotundum hirsutum quasi amplectitur. Palustribus gaudet. Oct. flor. Sin: *Ya tien tching*. Cnghm. P. 86. Tab. 398, fig. 4.

Fagotritici similis spinosa minor sinica, cauliculis erectis. Persicaria calyce floris rubente, foliis lanceolatis auritis et angustioribus, caulibus et ramibus spinosis, semine nigro splendente, triquetro et acuminato. In palustribus. Cnghm. P. 87. Tab. 398, fig. 1.

Linnaeus identifies this with his **Polygonum perfoliatum**.

Ficus arbor nostrati similis, fructu nigricante. Ins. *Crocodil*. P. 87.

Filix Adianto nigro officinarum similis pediculo viridi, pinnulis magis eleganter incisis. *Cheusan.* P. 91. Tab. 403. fig. 2.

Adiantum pallens.. Sw. V. Lam. Enc. Bot. suppl. I. 138.

Filicis non ramosae genus, pinnulis latius dentatis. Ins. *Crocodil.* P. 92. Tab. 401, fig. 2.

Filicis folia, *Lonchitidis* facie sinensis, ad pinnularum nervos lineolarum ferruginearum duplicem ordinem dorsigerens. P. 93. Tab. 399, fig. 3.

Filix cheusanica, latiori Lonchitidis serrato folio, aversa parte ferrugineis punctulis refertissimo. P. 93. Tab. 405, fig. 1.

Filicula s. *Bryopteris* repens Sinarum, inter Filicem et Lycopodium compos., pinnulis aversa parte micis argenteis ornatis. P. 93. Tab. 400, fig. 3.

Filix Phyllitis dicta minima *cheusan.* aversa parte globulis binis ordinibus per longitudinem foliorum instructa. P. 93. Tab. 405, fig. 4.

Filix minor sinica, foliis integris et trifidis, aversa parte punctis ferrugineis rarius interspersa. P. 93. Tab. 404. fig. 1.

Filicula cheusanica s. Hemionitis multifido folio tenuissime serrato, ad margines seminifera. P. 94. Tab. 407, fig. 2.

Pteris crenata. Sw. (Lam. Enc. Bot. V. 715).

Filix sinica Smyrni cretici facio, perelegans. P. 94. Tab. 398, fig. 6.

Frutex cheusanensis Bardanae majoris folio minore, Sambucum olens, floribus Jasmini odoris. Cnghm. in hunc modum describit: Frutex est flore albo, monopetalo, infundibuliformi, tubo longiore 5 fido, stylo staminibus productioribus stipato, abeunte in fructum mollem, seu baccam rotundam coeruleam, plerumque dipyrenam calyce insidentem 5 fido, ex virido purpurascente. Folia fert bina, lata, in acumen desinentia et pediculis longis insistentia. Sept. Oct. flor. P. 96. Tab. 411, fig. 1.

Frutex sinensis prunifolius, denticulis ad marginem spinosis, aversa parte parum villosis. P. 96. Tab. 409, fig. 3.

Frutex cheusanensis Myrti folio, flore albo hexapetalo, Jasmini odore fragrantissimo. P. 96. Tab. 409, fig. 1.

Frutex sinensis Myrtinis foliis pallentibus, alterno ordine dispositis. P. 96. Tab. 411, fig. 5.

Frutex sinensis baccifer, Ligustri foliis, fructu parvo, rotundo nigro monopyreno, calyce donato. P. 97. Tab. 407, fig. 1.

Frutex sinicus non spinosus, baccifer, Pyracanthae foliis majoribus, fructu parvo, rotundo, polypyreno. P. 97. Tab. 411, fig. 4.

Frutex cheusanensis baccifer, Theae foliis, laete virentibus, flosculis parvis virescentibus, plurimis simul ad foliorum ortus, ex calyce squamoso prodeuntibus. Frutex est flore 5 petaloide, petalis reflexis, squamatim nascentibus. Pistillum 4 fidum, quod deinde abit in baccam purpurascentem. Novb. flor. Cnghm. P. 97. Tab. 411, fig. 2.

Frutex cheusanicus floribus Theae ex albo carneis, fructu unicapsulari, capsula trifida. Foliis Theae sed non in usum adhibendis. Cnghm. P. 98. Tab. 409, fig. 2.

Frutex sinensis Alaterni longioribus foliis dilute viridibus, flosculis plurimis squamosis, ad ortum foliorum cauli appressis. P. 98. Tab. 406, fig. 2.

Frutex cheusanensis baccifer, Celastri foliis rarius dentatis, flosculis parvis, virescentibus, plurimis simul ad foliorum ortus, ex calyce squamoso racematim enascentibus. Proxime praecedentis forte species est. Frutex est flore pentapetaloide, petalis ex luteo virescentibus, fundo purpureo; ad divisuras petalorum prodeunt stamina brevia ex luteo virescentia. Pistillum virescens abit in baccam calyci hexaphyllo insidentem. Folia crassa, laevia subrotunda et acuminata, crenis raris, leviter incisa. Nov. flor Cnghm. P. 98. Tab. 407, fig. 4.

Frutex sinensis Uvae ursi longioribus foliis, leviter crenatis. Ins. *Crocodil.* P. 99. Tab. 435, fig. 8.

Frutex sinensis Majoranae minoribus foliis, prona parte candicantibus venis pullis e directo, et lineolis transcurrentibus elegantissime delineatis. *Chusan.* Cnghm. P. 100. Tab. 408, fig. 3.

Rhamnus lineatus. L. See Lam. Enc. Bot. IV. 473. **Berchemia lineata.** D.C.

Frutex sinensis monococcos, Rubi foliis parvis, viticulis spinulis asperatis. *Chusan.* An Rubus monococcos saxatilis alpinus? P. 101.

Frutex spinosus baccifer Sinarum, foliis Pentaphylli quinquefidis. P. 101. Tab. 409, fig. 4.

Frutex sinensis baccifer convolvulaceus Cisti foliis pubescentibus ad ramulorum nodos confertis. *Mareta Inali.* Hort. Malab. XI. tab. 63.—P. 101. Tab. 416, fig. 3.

Frutex convolvulaceus spinosus sinicus rotundiore nervoso folio, floribus parvis, umbellatis, claviculis ligneis binatim donatus. P. 101. Tab. 408, fig. 1.

Smilax China. L. V. Maxim. Decad. X.

Frutex cheusanensis conifer, foliis Juniperi planis et teretibus Cupressi. Cnghm. P. 102.

Probably **Juniperus chinensis.** L.

Fruticis *Theae* species altera Sinarum. P. 102. Tab. 405 fig. 3.

Thea viridis (Giseke).

Fumaria sinica foliis Chelidonii modo laciniatis. P. 102.

Fumaria siliquosa, nodosis siliquis. *Chusan*. P. 102.

Galeopsis cheusanensis spicata, Sideritidis folio et facie. P. 103.

Galium minus cheusanicum, locis uliginosis. P. 104.

Gentiana major aphyllos, adunco flore purpurascens. *Chusan*. Planta flore Digitalis purpureo absque foliis e terra prorumpens. Cnghm. P. 105.

Gnaphalii minoris genus sinense. Ins. *Crocodil*. P. 107.

Gramen cyperoideum capillaceis foliis pusillum. Ins. *Cheusan*. P. 110. Tab. 417, fig. 8.

Cyperus tenellus. L. Comp. Roem and Schult. Syst. II. 167.

Gramen paniceum polystachion sinicum, binis granorum ordinibus, et binis granis in eodem ordine, uno versv constante. *Cheusan* Sept. 20. 1702. Cnghm. Varrigo tawly Malabareis. P. 110. Tab. 417, fig. 7.

Gramen cyperoides cheusan. tricephalon, globulis echinatis. P. 112.

Gramen Cyperoides parvum sinicum, capitulo globoso, ad summum caulem inter quatuor foliola sessili. P. 112.

Hedera arborea cheusanensis, vulgari similis, sed foliis perangustis. P. 114. Tab. 415, fig. 5.

Comp. Philos. Trans. 77.

Hedera cheusanensis Glycyrhizae foliis rigidioribus. P. 114. Tab. 416, fig. 5.

Hieracium cheusanicum, Rapistri foliis glabris, ramoso caule, floribus parvis luteis. Flos radiatus, Discus ex flosculis lutescentibus et fuscis 5 fidis, corona e semiflosculis luteis octo plerumque composita. Folia laevia et laciniata. Planta 4–5 pedum alta. Nov. flor. Cnghm. P. 117.

Hieracium cheusan. Sonchi laciniatis folio. Flores in ramulorum fastigiis lutei. Oct. flor. Cnghm. P. 118.

Horminum sinense triphyllon, Caryophyllatae foliis, spica florum Galeopseos Dioscor. Planta flore purpuro violaceo labiato, piloso, cujus labium sup. falcatum est, infer. vero in 3 partes divisum, media Cochlearis instar excavata, cum duobus vel tribus staminibus versus labium sup. prodeuntibus. Calyx parum pilosus purpurascit et quasi labiatus, cujus labium inferius bifurcatum. Folia Betonicae similia versus radicem ex uno pediculo terna. Sept. flor. Cnghm. P. 119. Tab. 410, fig. 6.

Hypericum Ascyrum dictum *Cheusanense*, gummiferum, flore rosaceo, longissimis foliis, theca seminum pyramidata ex calyce polyphyllo 5 capsulari, gummi subflavum et lucidum Mastiches instar fundente. Semina oblonga et exigua. Folia fert absque pediculis, e regione bina, angusta, longiora et laevia, caule quadrangulo. Planta 3–4 ped. alta. Cnghm. P. 120. Tab. 420, fig. 4.

Jacobosa sinica, Irionis Apulae folio. *Chusan.* P. 121.

Jasminum japonicum Blattariae foliis latioribus ex adverso binis, subrotundis, acuminatis et serratis, floribus absque calyce tetrapetalis vel pentapetalis coeruleis, umbilico purpurascente, summo caule in umbellam sitis. Majo, Junio floret. Ex Japonia. Sin: *Seu kiu hoa* dicitur. Cnghm. P. 122.

繡毬 *Siu kiu* is the Chinese name for several species of Hydrangea.

Jasminum sinense foliis venosis, floribus pvrpureis, Shetti instar, longissimo tubo donatis. Ins. *Crocodil.* Cnghm. P. 123.

Ilex cheusanensis, Lauri folio leni, subtus incano, glande parvo et prae laevore nitente, calyce rugoso. Cnghm. P. 123.

Ilex Sinarum, longioribus foliis, a summo ad medium usque in margine serratis. *Chusan.* P. 123.

There is an *Ilex* among the plants gathered by Cantor in Chusan.

Juncus sinensis paniculis parvis conglobatis, acumine singulari, integro. P. 124.

Juncus parvus sinensis, panicula sparsa, caule foliaceo compresso. P. 124.

Juniperi folia arbuscula cheusanensis conifera, foliis variis Cupressi squamosis et Juniperinis. Cnghm. P. 125.

Carrière (Conif. 151). identifies this with Glyptostrobus heterophyllus. Endl. But it seems to me, that this short diagnosis agrees as well with *Juniperus Chinensis.* L.

Kali spinosum cochleatum sinicum. Planta maritima ramosa, foliis teretibus in aculeum desinentibus, alternatim positis, caulibus rubentibus et striatis. Flores foliorum alis singuli, aliquando bini adhaerent, et versus ramorum cacumina in spicam quasi depositi. Flos primo aspectu pentopetalos apparet, fundo incarnato, petalis albentibus, rigidis, membranaceis, quorum tria fere cordiformia et duo magis angusta (stricte loquendo seminis involucrum; staminibus caret.) sed revera monopetalos, 5 fidus. In fundo floris vero, et membranaceo, quasi capsula conspicitur semen unicum rotundum. Floris calyx quasi campaniformis et squamosus, plerumque 4 fidus, aut 5 fidus, in aculeos inaequales desinens. Oct. flor. Sin: *sha sin* i.e. in arenis nascens. Ad oram maritimam insulae *Tow tchey san* (v. supra) provenit. Kali spinoso vulgari haud absimile. Cnghm. P. 126.

Kali (forte) Genus herba *sinensis*, rotundiore Bliti folio, striato caule ad genicula plurimis barbulis ornato. *Toundepundoe* Sinensibus dicta. Huic autem haud parum convenire videtur *Anonymos* nostra americana foliis Parietariae scabrae etc. Phytogr. tab. 136, fig. 4.

I need not say that Tounde pundoe is not a Chinese name.

Lamium purpureum cheusan. seu *Galeopsis.* Vide supra Horminum sin. P. 129. Tab. 410, fig. 6.

Lavandulae facie planta aromatica, argenteis foliis ex ins. *Crocodil.* An forte Aster africanus frutescens, Lavandulae folio, flore purpureo. H. Amst. part. all. 57.—P. 130.

Lavreola sempervirens cheusanica, floribus ex albo virentibus. Jasminum humile erectum flore albicante, foliis integris. Cnghm. P. 130.

Laurifolia pomifera e regione Sinarum. P. 130. Tab. 424, fig. 5.

Laurus cheusanensis aromatica, Camphoriferae haud abludens, foliis subtus rore coeruleo tinctis. P. 131.

Lupulus foemina cheusanensis florens solummodo et non fructum ferens.

Humulus japonicus. S. et Z. See above Mus. Petiv. 944.

Lychnis ramosior cheusan. purpureo flore multifido, calyce longo striato. P. 135.

Lychnis sinensis angustis foliis multiflora, capsulis rotundis, glabris. Ins. *Crocodil.* P. 135. Tab. 427, fig. 3.

Lycium Myrsinites Sinarum, spinis longioribus bijugis, foliis lanceolatis, laevibus et obscure viridibus, ex adverso binis, absque pediculis, bacca rubente coronata, duo vel tria semina continente. Ins. *Pu to.* In Bonziorum hortis colitur, sin: *hu tsu* dicitur. Cnghm. P. 136. Tab. 426, fig. 3.

In Japan as well as in China (Peking) the name of 虎刺 *hu ts'z'* is applied to **Damnacanthus indicus.** Gaert.

Lycii similis frutex sinensis, Buxi foliis subrotundis et lanceolatis, leviter serratis, plerumque binis et ramulis alternatim nascentibus, flore minimo amentaceo, in muscariis et spicis verticillatim disposito, calyce multifido. Oct. flor. Cnghm. P. 138. Tab. 426, fig. 1.

Lysimachia siliquosa minor, villosis foliis, flore purpureo. *Cheusan.* Nostrati forte sit villosior, alio quin haud differt. P. 138.

Lysimachiae spicatae Ephemeron dictae similis sempervirens. *Cheusan.* P. 138.

Malva cheusanica, coeruleis floribus, ad caulis intervalla semiverticillatim positis. P. 140.

Malva verticillata. L? Common in China.

Marrubium aquaticum sinense, Ambrosiae Mexicanae foliis inodoris, Planta verticillata, flore labiato, foliis serratis oblongis

Stachydis, caule quadrato. Sin: *Tchu sin* dicta. In hortis Bonziorum colitur. Ins. *Tow whcy san* (v. supra). Cnghm, P. 142.

Matricaria sinensis, minore flore, petalis et umbone ochroleucis. P. 142. Tab. 430, fig. 3.

Linnaeus identifies this with his Chrysanthemum indicum.

Melilotus sinensis elatior, vulgari haud absimilis. P. 143.

Menthae cheusanensis spicata, Lysimachiae foliis, inodora. P. 144. Tab. 430, fig. 5

Menthae cheusan. verticillata, longiore et acuminato folio, odoris Menthae, camphoram resipiens. Flore ex albo coerulescente. Sept. floret. Alia est ejus species, gustus magis acris, sinice vocatur *po ho*. Cnghm.

The Chinese name 薄荷 *po ho* is applied to Mentha arvensis. L.

Menthae spicatae similis Sinarum. Nepetae minoris folio serrato, villoso, moschum olente, spica florum quaterno ordine, foliacea, monocarpos. Flores coerulescentes. Oct. flor. Cnghm. P. 145. Tab. 430, fig. 1.

Mercurialis cristatus minor procumbens. *Cheusan*. P. 145.

Muscus clavatus erectus crispatis foliolis, Spongiolae imitamentum. *China*. P. 149. Tab. 431, fig. 3.

Lycopodium cernuum. L. (Giseke).

Myrtus sinica latiore et crassiore folio, caule nodoso, ad cymum ramulorum flores emittens. P. 151. Tab. 433, fig. 4.

Nasturtium aquaticum minus cheusan. surrectum. P. 151.

A long confused dissertation on *Ninsin* seu *Ginseng* is found on p. 152.

Ocymum Melissophyllum sinicum, foliis longis, superius magis, inferius minus villosis serratis, flore ex albo purpurascente, labiato, cujus labium sup. parum surrectum est, vix bifidum, inf. vero tripartitum medio lobo puncto luteo notato. Flores nascuntur in spicis quadrangvlaribus, foliolis inter flores squamatim emanantibus. Oct. flor. Cnghm. P. 158. Tab. 429, fig. 8.

Ocymum Melissophyllum sinicum, foliis magis mucronatis laevibus, serratis, Urticae similibvs, caulibus quadratis et parum villosis, suavem Menthae odorem omnia spirant. Flos albus brevi tubulatus, vix labiatus, lab. sup. 2 fido, inf. 3 fido, medio puncto luteo notato. Flores in spica laxa nascuntur. Sept. flor. Sin: *Seu tee* vocatur. Cnghm. P. 159. Tab. 429, fig. 7.

At Peking *Perilla ocymoides* L. is termed 蘇子 *su ts's*

Olea sylvestris s. *Zizyphus* Indiae orientalis spinosa. Ilicis suberiferae folio duro, subtus argenteo et punctato. *Cheusan*. P. 160.

Olea sylvestris s. *Zizyphus cheusanensis* non spinosa, foliis subtus argenteo molli, fructu rotundo rubente, punctulis notato. Frutex est flore argenteo punctato, monopetalo infundibuliformi tubulato quadrifido, baccis rubentibus rotundis et punctatis, acidiusculis et esculentis, monopyrenis, sinensibus *Pai by* dicta. Alia est ejus species fructu oblongo. Cnghm. P. 160.

It seems that the *Jujube* is meant, but the Chinese name given is wrong.

Onobrychis cheusanensis. Trifolii bituminosi foliis, alatis pediculis, triphyllis, oblongis acuminatis, siliquis asperiusculis, compressis et parum incurvis, semine foetis in singulis articulis, unico oblongo et compresso. Oct. fructum perficit. Cnghm. P. 160. Tab. 433, fig. 8.

Onobrychis cheusan. floribus spicatis, foliis ternis, subrotundis amplioribus. Hedysarum triphyllum, flore ex albo purpurascente, in spicis laxis ad caulium summitates nascente, siliqua laevi et compressa, falcatim unico internodio distincta et siliculae cuspide acuta unci instar reflexa. Sept. flor. Cnghm. P. 161. Tab. 433, fig. 2.

Onobrychis sinica trifoliata Hedysarum triphyllum minus, siliculis hirsute pubescentibus, articulatis, uno latere undulatis, altero rectis, in spicam congestis, seminibus reniformibus. Cnghm. P. 161.

Onobrychis sinica Serpylli minimi hirsuti foliis triphylla, flore ex albo coerulescente, siliculis utrinque undulatis, compressis. Semina plana reniformia. Sept. flor. Cnghm. P. 162. Tab. 433, fig. 6.

Papaver corniculatum acre monophyllon, Valerianae rubrae folio angustiore. *Cheusan.* P. 166.

Plukenet means *Chelidonium corniculatum.* L.

Parietariae affinis *Chamaedryos* folio herba sinica, flosculis confertis circa caulem ex foliorum alis, flore apetalo, staminibus brevissimis, albis, extra calycem multifidum protensis, cui innascitur semen 3 angulare. Sept. floret in lapidicinis provenit. Cnghm. P. 166. Tab. 438, fig. 2.

Pedicularis cheusan. Geranii moschati foliis, flore carneo. P. 166. Tab. 439, fig. 7.

Pentaphylloides Sinarum foliis subtus argenteis, flore aureo guttato. P. 166. Tab. 435, fig. 5.

Potentilla.

Periclymenum cheusan. surrectum, Salicis folio non serrato. Jasminum arboreum cheusan. Cnghm. P. 167.

Periclymenum erectum sinense Frangulae foliis. P. 167. Tab. 435, fig. 4.

Periclymenum herbaceum cheusan. erectum, Circaeae majoribus foliis mollibus, incanis. P. 167. Tab. 438, fig. 3.

Periclymenum scandens hirsutum sinicum, subrotundis foliis binis, oppositis. Caprifolium flore minore ex albo flavescente tubulato in duo labia dehiscente, quorum sup. 4 fidum, inf. linguiforme recurvum. Flores prodeunt plerumque bini, ex foliorum alis et caulium summitatibus, cum duobus foliolis, eorum calycibus adnexis. Calyci vix conspicuo insidet bacca rotundo semine foeta. Sept. floret. Sin : *Kin in hoa* i.e. flos auro argenteus. Cnghm. P. 167. Tab. 435, fig. 1.

In China Lonicera chinensis. Wats. is called 金銀花 *Kin yin hua.*

Persicaria cheusan. Lapathi foliis, calyce floris ex rubro purpureo, spica rigida, rara, longiori. Sin : *loon king.* Cnghm. P. 168. Tab. 436, fig. 5.

Persicaria cheusan. foliis subtus argenteis, spica florum elegantiori. P. 168. Tab. 436, fig. 6.

Persicaria minor multicaulis. Ins. *Crocodil.* P. 168. Tab. 436, fig. 3.

Persicaria sinensis, longioribus et angustis foliis. *Cheusan.* P. 168. Tab. 436, fig. 1.

Persicaria pusilla Sinarum, angustissimis foliis, spica rara gracili. P. 168. Tab. 436, fig. 4.

Phalangium ramosum flore parvo longo gracili. Ins. *Crocodil.* P. 168.

Phillyrea Myrsinitis Sinarum. P. 171.

Planta peculiaris longioribus foliis, Cepeae Pancii capitulis papposis. *Cheusan.* P. 172.

Planta cheusanica tenerifolia, unicaulis triphylla, spithami plerumque longitudine, fructum fert absque flore in caulis summitate, ovatum, nucleo similem, membrana tenui inclusum, acrem radicis Ari gustum referentem, et alterum ejusmodi fructum cauli prope radicem, ad terrae superficie appressum. Oct. 1702 collegit. Cnghm. P. 174.

Prunifera Elaegni foliis, sin : *Yang muy* dicta, fructu hispido fraga redolente. In vino destillato toto anno conservant. P. 178.

Myrica sapida Wall. Comp. above Semedo 6.

Pulegii vulgaris species Sinarum, herba capsularis, pluribus capsulis ad nodos junctis, caule quadrangulari. *Tounde Chedde* a Sinis nominatur. P. 179. Tab. 439, fig. 2.

Pyracanthae similis Sinarum, foliis rotundioribus, subtus leviter tomentosis. Ins. *Crocodil.* P. 179.

Pyrolae nostratae similis, serratis foliis. Planta sinica, baccata, monopyrena, ad pedalem altitudinem vix assurgens, non ramosa, foliis Cerasi, ex adverso binis, fructu rubro, rotundo, caudato, semine unico, calyce 5 fido. Nov. maturescit. Cnghm. P. 179.

Pyrola frutescens, Arbuti folio. *Cheusan*. P. 179.

Quercus julo rotundo, calyce echinato, glande minore laevi. *Cheusan*. Cnghm. P. 180.

Quercus (forte.) *cheusanensis*, Castaneae minoris folio prona parte candicante. P. 180.

See above Philos. Trans. 87.

Quercus cheusan. minoribus et serratis foliis hirsutis. P. 180.

Rapuntium minimum cheusan. Campanulae autumnalis folio et facie, flore Lini coeruleo, pentapetaloide, cujus pistillum abit in vasculum 3 capsulare, campaniforme. Sept. flor. Cnghm. P. 181.

Rapuntii parvi species altera cheusanensis. Flore ex carneo purpurascente, monopetalo, anomalo, tubulato et sulcato, in 5 partes linguiformes digitatim diviso, extremis longioribus et angustioribus, vagina ad basim 3 fida excipit et amplectitur pistillum ad summitatem. Calyx 5 fidus. Semina exigua rotunda. Folia fert Alsines fere similia, alternatim posita et leviter serrata. Sept. flor. Cnghm. P. 181.

Rhamni cathartici similis, longioribus foliis, fructu nigro dipyreno, ex insula *Tow whey san*. Frutex est bacca nigra rotunda, umbone notata, succo lutescente, instar Rhamni cathartici, praedita, et duobus seminibus callosis, gibbosis et quasi cylindraceis foeta, foliis oblongis et obtusis, leviter serratis, spinis rarioribus et longioribus donatus. Oct. fructum matur. Cnghm. P. 182. Tab. 408, fig. 2.

Rhamno nostrati cathartico accedens minor. Ins. *Cheusan*. P. 182. Tab. 408, fig. 4.

Rhamnus cheusan, cortice albo, Berberidis instar fructum ferens calyculatum. Frutex est spinosus, flore superius purpureo parum striato, inferius ex viridi et albo purpurascente, hypocrateriformi multifido, 5 partito, plerumque tubo breviori, ex cujus calyce 4 fido surgunt stamina alba cum pistillo, quod abit in fructum mollem, seu baccam rubram ovatam, polypyrenam. Sept. flor. Cnghm. P. 182.

Rhamnus Pruni sylvestris folio *cheusan*. cortice querno, validioribus foliatis spinis, bacca minore nigra, unicum intus semen claudente. P. 183. Tab. 427, fig. 4.

Rhamnus sinensis flore coeruleo, ex oris maritimis ins. *Cheusan*. P. 183.

Rhus quinquefolia Sinarum, lactescens, rachi medio alata, foliis molli hirsutie pubescentibus. P. 183.

Miller identifies this with his Rhus chinensis. Comp. also above Philos. Trans. 89.

Rorella parva cheusan. nostrati similis, caule folioso. P. 184.

Plukenet means *Drosera*.

Rosa sylvestris cheusan. foliis subtus incanis, floribus purpureis parvis. P. 185.

Rosa alba cheusan. foliorum marginibus et rachi medio spinosis.

Rubia sinica, fructu majore nigro, foliis partim Galii stellatis, partim Smilacis aspere effigie scabris. P. 185. Tab. 441, fig. 3.

Rubia quadrifolia aspera, baccis numerosis, singularibus, nigris, succulentis, semine unico, rotundo, umbilicato foetis. Nov. collecta. Cnghm.

One of these two species is probably Rubia cordifolia. L. But the fruit of the latter is of a brown colour, when ripe.

Rubus sinensis non spinosus triphyllos, floribus parvis rubro-purpureis. P. 186.

Rubus parvus spinosus, foliis subtus canescentibus ex insula *Emoy*. P. 186.

Rubus odoratus minimus sinensis, cauliculis asperis provolutis. P. 186.

Scabiosa graminifolia nudicaulis, capitulis argenteis, sive *Statice* minima elatior Sinarum. P. 188.

Scorodoniae affinis *Sinarum*, floribus ex albo purpurascentibus, spica florum compactiore. Flore monopetalo, labiato, cujus stamina labii sup. locum occupant, labium vero inf. in 5 partes dividitur, media ampliori, et Cochlearis ad instar excavata, ceteris in floris cervice e regione positis. In calyce 5 fido reconduntur 4 semina subrotunda et oblonga. Sept. flor. Cnghm. P. 188. Tab. 441, fig. 2.

Scutellaria sinica Betonicae folio, floribus albis. P. 190. Tab. 441, fig. 1.

Linnaeus identifies it with his Scutellaria indica.

Scutellariae accedens *cheusanensis* Ocymi folio, flore ex albo purpurascente, semine singulari. Flore intus purpureo, exterius ex albo purpurascente, monopetalo, infundibuliformi, 4 fido, leviter inciso, tubulato, tubo incurvo. Ex calyce brevi, multifido, surgit pistillum, quod deinde abit in semen unicum ovatum, extra calycem prominens. Folia bina, oblonga, acuminata, superne laete, inferne pallide viridia. Flores in spicis. Sept. Oct. flor. Cnghm. P. 191. Tab. 443, fig. 3.

Scrophularia minor sinica, Betonicae subrotundis foliis. P. 190.

Sena spuria sinensis, Mimosae foliis minimis, floribus parvis, magis expansis. Ins. *Crocodil.* P. 193.

Sium minimum umbellatum *sinicum*. Flore albo rosaceo, umbellato, ex 5 petalis subrotundis, in orbem positis et 5 staminibus composito, calyce insidentibus. Fructus e duobus seminibus compositum, subrotundis, crassis hinc gibbis et profunde striatis. Folia brevia, crassa, costae per conjugationes innascentia, ultimo impari claudente trifido et pinnis aliquando trifidis. Ex insula *Pum si san*. Oct. flor. Cnghm. P. 193.

Siler Aquilegiae foliis angustioribus. Ins. *Crocodil.* P. 193.

Smilacis asperae seu Zarzae latis Canellae foliis. Planta claviculata, pediculis foliorum vaginatis, Cynorrhodi fructu, profundius striato, Mali punici ad instar, tubulo brevi pergameno, summa parte coronato. Ins. *Crocodil.* P. 194. Tab. 438, fig. 7.

Solanum mordens sinicum, Berberidis fructu singulari, viticulis suis spinis longioribus aculeatum. P. 195. Tab. 443, fig. 2.

Sorbi species *Sinarum* Cucurbitiferae Panorama dictae (Almag. bot.) foliis, aculeato caudice. Frutex est spinosus, scandens, baccis rubris rotundis in umbellae modum dispositis, in pulpa subrubra, succulenta, gustus parum acidi et adstringentis latent semina ossea plura, inaequalis figurae, plana vel convexa, circa axem seu placenta disposita. Folia Polygonati fere, sed circinatae rotunditatis, singulas foliorum et ramorum divaricantium insertiones duo amplectuntur foliola, in cirros plerumque terminantia. Nov. fructum perficit. Cnghm. P. 196. Tab. 444, fig. 3.

On pag. 198 of Plukenet's Amalth., sub *Tamarindus monococcos*, the author suggests, that the celebrated *Soy* of the Chinese and Japanese, (made as is known from the Soja-bean, *Soja hispida* Moench.) may be obtained from the seeds of Tamarind, of which he gives a drawing. Tab. 441, fig. 4.

Tetraglottis baccifera Sinarum seu Ligularia arbor sinensis, Gossypii quinquefidi amplioribus foliis, quator ligulas foliaceas, longo pedunculo ex alis insidentes, pro floribus ferens, e ligularum margine baccifera. *Ou tom chu* Sinarum. P. 199. Tab. 444, fig. 4.

Sterculia platanifolia. Cav. See above Philos. Trans. 82.

Teucrium cheusan. folio molli, incano, subrotundo. serrato, flore coeruleo, monopetalo, labiato, cujus lab. sup. parum fornicatum, surrectum, et fimbriatum, infer. vero 3 fidum. Calyx 5 fidus. Semina 4, triangularia, fusca. Flores in umbella quasi dispositi. Nov. flor. Ins. *Pu to*. Cnghm. P. 200.

Triapteris Sinarum, Hederae folio, scandens, fructu minore. P. 202.

Triapteris Sinarum, Tiliae fere foliis alternis, ad genicula fructum fasciculatim proferens, monospermum, semine, triquetro, nitente, nigro. Vasculum seminale cordiforme, ex tribus alis membranaceis, sagittae extremitatis instar conflatum in medio semen unicum nigrum includens. Caulis nodosus et fistulosus. Aug. flor. Cnghm. P. 203. Tab. 444, fig. 5.

Trifolium maritimum. Planta est trifolia, flore papilionaceo, siliculis lenticularibus caudatis, confertim nascentibus, unum semen lentis figura continentibus. Ins. *Tow whey san*. Oct. 20. 1702. Cnghm. P. 205. Tab. 446, fig. 8.

Trifolium monocarpon Meliloti affine, folliculis parvis compressis. *Cheusan*. P. 205. Tab. 446, fig. 1.

Verbasci similis quadrato caule, *Cheusan*. minore folio acuminato, subtus molli tomento candicante. P. 207. Tab. 448, fig. 2.

Veronica cheusan., Grossulariae folio, flore amplo purpureo. Alysso montano Dioscor. Fabio columno proxime accedit. P. 208.

Viburnum cheusan. Frutex baccifer, foliis Ulmi subrotundis, ad sumitatem latioribus, in acumen brevius' desinentibus, serratis, et inferne parum incanis, ex adverso binis, Bacca rubra, rotunda, acida, adstringente, semine unico, subrotundo, duro et compresso, racematim congesta. Oct. matur. Cnghm. P. 208.

Viola parva cheusan, grumosa radice. P. 208.

Virgo aurea minor, spicato flore luteo. *Chusan*. P. 209.

Visci similis frutex *cheusan*. Clematitis. P. 210. Tab. 448, fig. 3.

Vitex Sinarum, subrotundis argenteis foliis bijugis, caule quadrangulare. Ins. *Crocodil*. P. 210. Tab. 449, fig. 1.

Vitis Idaea seu *Vaccinia chusanensis*. Frutex est flore rufescente, campaniformi, urceolato, globoso (inter Ericae.) ad os parum diviso. Ex calyce 5 fido surgit pistillum, quod deinde abit in baccam nigro-purpuream edulem. Foliis pruni serratis subrotundis, acuminatis. Nov. flor. Cnghm. P. 210.

Comp. above Mus. Petiv. 987, Gazoph. tab. 35, fig. 7.

Vitis vinifera sylvestris. *Cheusan*. P. 211.

Vitis vulpina dicta Virginiana alba. Almag. 392. Hujus ramulum Cnghm. ex ins. *Chusan* ad nos transmisit. Et circa Constantinopolin frequens est (Dr. Timone.)

Vitis agrestis sinica minor "The least Fox grape." *Chusan*, *Vitis vulpina*. L. has been observed also in Manchuria and Japan. One of the above mentioned grapes may be V. *labrusca*, which has been observed in Formosa, Amoy, Peking.

Ulmus nana cheusan. Frutex fructu ovato, plano, membranaceo, ad sumitatem parum diviso, semine foeto unico, lentiformi, in fructus centro, foliis Ulmi fere splendentibus, glabris, serratis et accuminatis. Fructus prodit ex flore, vel calyce 5 fido et Nov. maturescit. Sin: *Kin tchang lang*. Cnghm. P. 211.

Urtica racemifera maxima Sinarum, foliis subtus argentea lanugine villosis. Planta sylvestris *Ma* dicta, unde efficitur filum instar Lini *ma sien* dictum. Cnghm. P. 212. Tab. 429, fig. 2.

Boehmeria nivea. Hook. and Arn.

Planta sativa *Co* dicta, unde efficitur *Co-pou* pro vestibus aestivis. Cnghm. P. 212.

Pueraria. See above Le Comte 10.

Xanthium seu Lappa minor Chenopodii foliis. Cheusan. P. 213.

Xeranthemum sesamoides flore albo, Ericae foliis cauli tomentoso adstrictis, ad radicem vero Staechadis citrinae longioribus, et solutis. Ins. *Crocodil*. P. 213. Tab. 449, fig. 5.

This plant is identified in Lam. Enc. Bot. III. 289 with **Xeranthemum heterophyllum** from the Cape of G. H.

Arbusculum bacciferum Canellae folio trinervi, subtus argentea lanugine villoso. *Cheusan*. Cnghm. P. 213. Tab. 450. fig. 2.

Arundo sinica ramosa, plurimis squamulis ad culmum donata. P. 213.

Calamintha montana sinica, Betonicae folio, floribus coerulescentibus P. 213. Tab. 450, fig. 8.

Eupatorium cheusanense, Urticae foliis, pediculis alatis et auriculatis, floribus summo caule conglomeratis. P. 213. Tab. 451. fig. 2.

Frutex cheusan. foliis rugosis, Jasmini flore tetrapetaloide. P. 213. Tab. 451, fig. 1.

Frutex sinensis alatis foliis, siliquis torosis, villis aureis densius obductis. Tab. 451, fig. 8.

Frutex sinensis, Senae sylvestris folio angustiore, nodosa siliqua rostro longiore donata. Tab. 451, fig. 10.

Gramen parvum cheusan. spicatum, granulis compressis cordiformibus. Tab. 452, fig. 6.

Gramen cheusan. foliis brevibus aculeatis globiferum, globulos aureos Chamaemeli nudi similes, inter folia proferens. Tab. 451, fig. 9.

Mespilus oxycantha cheusan. oblongis, mucronatis et serratis foliis, fructu longiore, summis ramulis innascente. P. 216. Tab. 453, fig. 3.

Loureiro Fl. coch. 392 identifies this with his **Mespilus pyracantha** (see below.)

Muscus denticulatus minor. Cheusan. Tab. 453. 9.

Lycopodium ?

III. SWEDISH COLLECTORS OF PLANTS IN SOUTH-CHINA, 1751 AND 1766.

The greater part of the accounts presented in this chapter have been borrowed from a book, which bears the following title:

A VOYAGE TO CHINA AND THE EAST INDIES BY PETER OSBECK
together with
A VOYAGE TO SURATTE BY OLOF TOREEN
and
AN ACCOUNT OF THE CHINESE HUSBANDRY BY CAPTAIN CH. ECKEBERG.
translated from the German by
JOHN REINHOLD FORSTER.*
to which are added
A FAUNULA AND FLORA SINENSIS.
London 1771. Two volumes.

PETER OSBECK, a Swede and a pupil of the great Linnaeus, to whom the latter was indebted for the greater part of the Chinese plants and animals he has described—was born in 1723. In 1750 he set out on a journey to China, as chaplain to a Swedish East Indiaman, the *Prince Charles*, which left Gothenburgh 18 Nov. 1750, and arrived at Cadiz 4 January 1751. After a stay of 10 weeks they left this place 20 March, sailed around the Cape, without landing there, in the second half of May. June 12 they passed St. Paul, on July 15 anchored in the harbour of Angeri (Java, Sundastr.), left again on the 17th. Here Osbeck was able to collect some plants. On the 25 Aug. 1751 the *Prince Charles* anchored at *Whampoa* (near Canton) and remained there more than four months, weighing anchor on the 5th Jan. 1752. On the way home Osbeck again collected Javanese plants and beasts in New Bay, where the *Pr. Charles* stopped a few days. In April O. made some collections on the island of Ascension and on the 26. June 1752 came bake to Gothenburgh.

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* The well known naturalist and traveller, who accompanied Capt. Cook on his second circumnavigation of the globe 1772–75.

Osbeck was a zealous naturalist and brought home a rich collection of natural objects, chiefly Chinese specimens, for during his long stay at Whampoa and Canton he had ample opportunity of visiting the neighborhood of these places. All his collections he placed in the hands of Linnaeus, who described them, the plants in his *Species plantarum*, published a year after Osbeck's return.

Osbeck's original account of his voyage appeared in 1757 in his native language: *Dagbok öfver en ostindisk resa*. He published also some botanical articles in the Act. acad. Holm. 1762, 1765, and 1769. He was member of the Academy of Stockholm and of the Soc. of Upsal, and died as Rector of Hasloff and Woxtorp in 1805.

A German translation of Osbeck's narrative was made in 1765 by *J. G. Georgi*, and revised and completed by Osbeck himself. *Georgi** was Professor of Mineralogy at the Academy of St. Petersburg. He accompanied Pallas on his travels to Siberia and died 1802.

The English translation of Osbeck's book was made from the German by *J. R. Forster*, the well known companion in travel of Capt. Cook.

All the Chinese specimens gathered by Osbeck belong to the neighborhood of Canton. During his stay at Whampoa he repeatedly made excursions to Canton and investigated the Flora of the islands in the river. He often mentions *Danes* island, *French* island, only separated from the latter by a stream, and *Honam* (erroneously written *Stonam* in the narrative), an island west of the two first mentioned and on which a large suburb of Canton is situated. Not many of the botanists in Europe will be aware, I think, that Danes island on which Osbeck collected plants 130 years ago, has been for nearly 20 years the residence of one of the most distinguished botanists of our time, who has done so much to throw light on the Flora of China and whose name has a world-wide reputation. The numerous papers on botanical matters which have been published by Dr. *H. F. Hance* are generally dated from the British Consulate at Whampoa, which has been established on Danes island and not, as might be presumed, at the Chinese city of Whampoa, situated opposite the Consulate on the left bank of the river.

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* Willdenow named the genus *Georgina* (*Dahlia*) after him. Thus this favored gardenflower was not, as is erroneously believed by some authors, dedicated to King George III of England.

Osbeck's notes on his plants collected near Canton are found scattered in his diary. He enumerates in the whole 244 Chinese plants, giving their Linnaean names, often describing them. Sometimes he adds also the Chinese names according to the Canton dialect, but generally he sadly perverts the Chinese sounds. He says himself (II. 10) that it is possible that the Chinese, who gave him these names, have imposed upon him on many occasions.

Linnaeus, when determining Osbeck's Chinese collection seems to have been under the impression, that the habitats marked on the herbarium tickets, as Danes island, French island etc, referred to places of India, for in his Species plantarum, published 4 years before Osbeck's narrative appeared, all plants gathered by the latter, figure, with a few exceptions, as Indian plants only. But as we have seen O. never visited India. He collected a few plants on the coast of Java, but the bulk of his collection was represented by Chinese specimens. I may quote a few instances. In Linnaeus' Spec. plant. it is clearly stated, that Osbeck had gathered *Rubus parvifolius*, *Cyperus Iria*, *Barleria cristata* in India, whilst Osbeck had brought these plants from Canton. It seems that Linnaeus had a very confused idea with respect to the position of China and we cannot but think, that he considered the latter name to be a synonym for India. He describes many plants not known from elsewhere than from China as natives of India. Thus he states himself, that his *Rosa indica* and *Lagerstroemia indica* are Chinese plants. He describes his *Daphne indica* from specimens gathered by Osbeck at Canton, and this plant has, as far as I can conclude from the quotations in D. C. Prodr. XIV. 543, never been observed in India. On the other hand *Sphaeranthus chinensis* in his Spec. plant. figures as an Indian plant only. Compare D. C. Prodr. V. 371 "cur chinensis cum ipse auctor ex India ortam dicat?" It is strange to say that none of the botanists who after Linnaeus have compiled general systematic works on Botany, as Lamarck, Willdenow, Sprengel, De Candolle, Kunth etc., ever ventured to refer, with respect to Chinese plants directly to Osbeck's book. They draw from Linnaeus and mention Osbeck's Canton plants only in such cases for China, when the former had happened not to give India as habitat. But, as we shall see further on, by far the greatest part of the plants Linnaeus knew from China were collected by Osbeck near Canton.

A considerable number of Osbeck's Chinese specimens were known previously from India (Rumphius, Rheede), but were then new for China and of many of them Linn. had hardly seen original specimens from India. There are in his collection about 50 (probably more) entirely new plants, 12 of which are represented by drawings in his book, viz:

Tab. 1 *Baeckia frutescens.*
Tab. 2 *Osbeckia chinensis.*
Tab. 3 fig. 1 *Pteris semipinnata.*
fig. 2 *Utricularia bifida.*
Tab. 4 *Pteris vittata.*
Tab. 5 *Helicteres angustifolia.*
Tab. 6 *Trichomanes chinensis.*
Tab. 7 *Rhamnus lineatus.*
Tab. 8 *Barleria cristata.*
Tab. 9 *Gerardia glutinosa.*
Tab. 10 *Carpesium abrotanoides.*
Tab. 11 *Clerodendron fortunatum.*

Besides dried specimens of plants Osbeck had brought also from China many seeds from which Linnaeus succeeded in raising several new plants. It does not seem, that he had examined the whole of Osbeck's collection, for we meet in Osbeck's narrative some names and descriptions of Chinese plants not found in the Spec. Plant.

LIST OF CHINESE PLANTS KNOWN TO LINNAEUS.

Forster in compiling his *Flora sinensis*, or Catalogue of Chinese plants (see above.) enumerates all Osbeck's specimens from China (244) and adds the names of 56 more Chinese plants known in 1771. In the following list I venture to present a more complete list of Linnaean Chinese plants (for Forster has overlooked many species) arranged according to Bentham and Hooker's Genera Plantarum. I always give their new names in the system, should the Linnaean name have been changed. The plants collected by Osbeck I mark with *Osb.* As in his narrative (Engl. transl.) the accounts of Chinese plants are found in the first volume from p. 208 to the end, and in the second from p. 1 to 17, I shall quote only the pages not the volumes.*

DICOTYLEDONS.

1. **Clematis chinensis,** resembling Cl. vitalba. Danes isl. Canton. Osb. 329. 393.

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* Abbreviations of the titles of some botanical works, to which I shall have to refer frequently in the subsequent pages:
G. P.=Bentham and Hooker, Genera Plantarum.
D. C.=De Candolle's Prodromus Syst. nat. veg.
Kth. =Kunth's Enumeratio Plantarum.
Lour.=Loureiro's Flora cochinchinensis 1793 (edit. Willdenow.)
Fl. bgk.=Bentham's Flora hongkongensis. 1861.
Add. Fl. hgk.=Dr. Hance's Supplement to the Flora hongk. Journ. Linnaean Soc. XIII.

This name was given by Osbeck and is not found in Lin. Sp. pl. Retz described the plant under the same name in his Obs. bot (1780). D. C. I. 8. According to Maxim. Dec. XX probably the same as *Cl. terniflora*. D. C.

2. **Illicium anisatum.** Lin (Forster.)

Star Anis was first brought to Europe from the Phillipines in 1588. Linnaeus had hardly seen a specimen of the Chinese plant producing Star Anis.

3. *Lan fa* or *Leen fa* Chinensium. Canton. Osb. 209.—*Gnao* or *Laen gao* (Nymphaea Nelumbo L.) white roots of the thickness of carrots, but longer, articulated and hollow inside. Poor people eat them raw, but they are not very palatable. Osb. 310.

Nelumbium speciosum. Willd. Sin: 蓮花 *lin fa*, the roots 蓮藕 *lin ngau.*[*]

4. *Fumaria spectabilis*. Lin. (Amoen. acad II. (1751) and VII. (1768; drawing) described as a Siberian plant, but Gmelin, from whom Linnaeus draws, states clearly that the plant had been received from China. This is **Dicentra spectabilis.** Miq. It grows wild in the Peking mountains.

5. Chinese Cabbage (**Brassica chinensis.** L.), does not form heads. In Chinese *kay lan*. Another sort called *pack-soa* with bulbous root is sold here (Canton) likewise. Osb. 313.

The Chinese names intended are probably 芥藍 *kai lan* and 白菘 *pak sung*. Linnaeus states, that his plants had been raised from seeds brought by Osbeck.

6. **Brassica violacea.** Lin. This plant, which Linnaeus describes as a Chinese plant, is only known, it seems, from his specimens.

7. Oriental Mustard (**Sinapis orientalis.** Lin.) Osb. 309.

Known to Tournefort from the Levant. Linnaeus does not mention it for China.

8. **Sinapis chinensis.** Lin. This plant was first noticed by Boerhave, who in 1710 received the seeds from Batavia. D. C I. 219, and Lour. 485, mean that it is rather a variety of the next.

9. **Sinapis juncea.** Lin. Asia, China (Lin.) Cultivated in Europe since 1710.

10. **Sinapis brassicata.** Lin. China. According to Lour. 485 also a variety of S. juncea.

11. *Raphanus sativus*. Lin. var *oleifera*. D. C. I. 228. **R. chinensis** annuus **oleiferus.** Lin. Seeds of this had been brought from China by Capt. Eckeberg (s. further on.)

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[*] As Osbeck gives (or tries to give) the Chinese names in the Canton dialect I shall write the Chinese sounds according to the same dialect.

12. **Polygala chinensis.** Lin. I am not aware whether this species is really found in China. Lin. gives only India as habitat.

13. *Polygala ciliata*. L. Danes isl. French isl. Osb. 356, 393.

Known from Ceylon before. **Salomonia?** **ciliata.** D. C. I. 334.

14. **Dianthus chinensis.** Lin. Introduced into Europe from China about 1702.

15 **Hypericum chinense**. L. Danes isl. Osb. 2.

Hance. Journ. bot. 1879, 8. Canton prov. *H. monogynum*. L. is the same·

16. On p. 246 and 39 Osb. gives some accounts of the **Tea** shrub. When the ship departed from Whampoa Osbeck's Tea shrub, which stood in a pot fell upon the deck during the firing of the canons and was thrown over board.

17. **Camellia japonica**. L. sin : *fo kai*. Osb. 17.

Known previously in Europe.

18. **Vatica chinensis**. Lin. Mant 242. Smith icon. ined. Linn. I 36, tab. 36. Benth. Hook. G. P. I 192 however state, that this is not a Chinese but an Indian plant.

19 **Althaea rosea**. Cav. According to the Bot. mag. 3198 introduced from China 1753. Bat Linn. (*Alcea rosea*) says only : in Oriente. The plant is very common in China.

20. **Malva verticillata.** L. Malva sinensis erecta floribus albis minimis. Boerhave Lugd. (1720). Cultivated in England as early as 1683. *M. chinensis* Mill. Dict. 5 is probably the same.

21. **Sida spinosa**. L. Canton. Osb. 329.

Known previously from India.

22. **Urena chinensis**, caule erecto, floribus majusculis. French isl. Osb. 363,

This name is not found in botanical works.

23. **Urena lobata**. L. French isl. Osb. 354.

Known from China before. *Urena sinica*, Dillenius. 1732.

24. **Urena procumbens**. L. a little tree, near Canton. Osb. 387.

25. **Hibiscus mutabilis**. L. Whampoa. Osb. 198.

Known from China before. *Ketmia sinensis*. Tournef.

26. **Hibiscus ficulneus**. L. Canton. Osb. 328.

Known from Ceylon before.

27. **Gossypium herbaceum**. L. French isl. cultum. Osb. 349.

28. **Sterculia platanifolia**. Cav. introduced from China in 1757, known to Lin. under the name of *Hibiscus simplex*., Plukenet's *Tetraglottis*.

29. **Helicteres angustifolia**. L. sin: *Kay ma*. Danes isl. Osb. 376.

30. **Waltheria indica**. L. Danes isl. Osb. 375.

Known from Ceylon before. Fl. hgk. 38.

31. *Bartramia indica*, Danes isl. sin: *hoang fa mo*. Osb. 376.

B. indica not mentioned in any system. botan. work. Bartramia is now considered a section of Triumfetta. Sparrmann (s. further on) gathered at Canton *Triumfetta Bartramia*, which is probably the same. D.C. I 508 dubious plant. The Chinese name given by Osb. is probably 黃花暮 *wong fa mo*, which is applied in Canton to *Sida rhombifolia*. L. (Parker)

32. **Oxalis corniculata**. L. sin: *Syn mee*. Danes isl. Osb. 389.

The Chinese name of this plant is 酸味 *sün mi* (Parker.) It was known from India before Osbeck.

33. **Averrhoa Bilimbi**. L. An oblong, yellow, sourish fruit with 5 deep furrows, which has the quality of Lemons, but is sooner spoiled. The Chinese at Canton call it *samm-nim* and make a conserve of it called *ka la mang* Osb. 306.

A. Bilimbi, known from India before, sin: 三捻 *sam nim*.

34. **Impatiens Balsamine**. L. Canton. Osb. 209.

Known from India before.

35. **Impatiens chinensis**. L. Canton. Osb. 344.

36. *Paullinia asiatica*. L. with sharp pointed hamated thorns. It makes good hedges. Danes isl. Osb. 9.

Known from India before. D.C. II, 83 **Toddalia aculeata**. Pers Fl. hgk. 59:

37. There are in Canton 2 sorts of *China Oranges* (*Citrus sinensis*. L.) The first is that called the *Mandarin Orange*, whose peel is quite loose, and the Chinese call them *kamm*. It is the best kind. The peel of the other sort sits close. It is called *tiang* or rather *kang*. Osb. 307.

The Mandarin Orange, Citrus nobilis. Lour. is termed 柑 *Kom* in Canton, the Coolie Orange (see above Martini 8) is known in China under the name of 橙 *ch'eng*.

38. A sort of low sweet Orange trees, with a small fruit called *gatt*. Canton. Osb. 208.

橘 *Kwat* is a generic term for Oranges.

39. *Kamm-kat* is the name of a sort of small Lemons, which are not much larger than Cherries. Canton. Osb. 306.

Citrus japonica. Thbg. sin: 金橘 *Kam Kuat*.

40. *Buxoides aculeata*. It is like our Boxtree but thorny. Danes isl. In Chinese *sow pann ghip*. Osb. 394.

Perhaps **Atalanta buxifolia**. Oliv. Fl. hgk. 51.

41. Here are also two sorts of Lemons (**Citrus decumana**. L.) which are called *Yao* by the Chinese. The first is round and its name is *Lo yao*. The second called *Han yao* is long and is usually offered as a sacrifice to their idols. Osb. 307.

The Chinese name for *Citrus decumana* is 柚 *Yau*.

42. The *Lemt yes* tree (*Citrus medica*. L.) in Canton bears little round sour Lemons called *na mang*, and which are used instead of Tamarinds, or common Lemons, generally before they are ripe. The trees are sold in pots and seldom about a yard high. Osb. 208. 306.

This is I believe **Citrus medica**. L. var. **acida**. Hook flor. Ind. I 514. Sin: 檸檬 *ning meng*.

43. **Ailanthus glandulosa**. *Desf*. (1786.) This Chinese tree has been introduced into Europe in 1751 and was at the time of Linnaeus known under the name of *Vernis du Japon*.

44. *Chinese Olives* in Canton, *pack-la*. Osb. 309.

Osbeck evidently means **Canarium album**. Raeusch. sin : 白欖 *pak lam*.

45. *Olom sio*, a certain great tree with pinnated leaves, smooth, with opposite folioles. A resin comes out of the tree much like the Gum arabic. Danes isl. Osb. 9

Canarium Pimela. Koenig. sin 烏欖樹 *u lam shü*.

46. **Salacia chinensis**. L. See D. C. I. 571.

47. *Rhamnus oenopolia*. L. in Chinese *Kog-no-im*. Near Canton. Osb. 386.

Known from India before. **Zizyphus oenoplia**. D.C. II. 21.

48. *Rhamnus lineatus*. L. French island. Osb. 353.

See above Pluk. Amalth. Frutex sin. Majorani fol. **Berchemia lineata**. D. C. II. 23. Fl. hgk. 67.

49. *Rhamnus Thea*. L. Poor man's tea. The leaves of this shrub are made use of by the poor Chinese instead of tea. They call it *tia*. Danes isl. Osb. 375.

Sageretia theezans. Brong.—Fl. hgk. 68.

50. **Koelreuteria paniculata**. Laxm. *Sapindus chinensis*. L. fil. Introduced into England 1763, described 1772 by Laxmann.

51. *Lat-yee* is the Chinese name of a fruit, which is eaten in Canton with tea. It tastes almost like a plum, and looks like large gallapples, covered with a brownish, thin, and warty skin. *Long-an* is less than lat-yee. They have a smooth skin and sweet pulp. Osb. 308.

Nephelium Litchi Camb. and **N. longan**. Camb.

52. **Rhus chinense.** Osb. Danes island, in Chin: *monkhi*. Osb. 375.

Probably the same as Rh. *chinense* Mill. Dict. known before Osbeck from China. See above Pluk. Amalth. Rhus quinquefol. sin.

53. *Rhus javanicum*. L. germine rubro, Danes island. In Chin: *tay sha*. Osb. 375.

D. C. II. 67. **Rhus semialata.** Murr. var. **Osbeckii.**

54. *Mango* (**Mangifera indica.** L.) This fruit is sold in China by the name of *quai mao*. In the Javan. language it is called *Po*.

I am not aware what name is intended by quai mao. The Chinese call the fruit *mango* as the Malays do. Fl. hgk. 70.

55. **Crotalaria juncea.** L. Canton. Osb. 336.

Known from India before.

56. **Crotalaria chinensis** Lin. China. D. C. II. 130.

57. **Crotalaria sessiflora.** Lin. China.—Fl. hgk. 74.

58. **Indigofera tinctoria.** L. French isl. In Chin. *tong am* or *va*. Osb. 350.

Known from India before.

59. **Astragalus chinensis.** Lin. fil. China. D. C. II. 294.

According to Lam. Enc. Bot. I. 310 cultiv. in Paris.

60. **Astragalus sinicus.** Lin. China.

D. C. II. 282. *Astr. lotoides*.

61. *Phaca trifoliata*. Lin. China. A dubious plant. D. C. II. 275. G. P. I. 507. **Crotalaria** or **Astragalus.**

62. **Arachis hypogaea** L. Danes island, cultiv. In. Chinese: *fy shin*. Osb. 377.

Known before from Asia and America. Sin: 花 生 *fa shang*.

63. *Hedysarum triquetrum*. L. Danes isl.—In Chin: *Ka song so*. Osb. 374.

Known from Ceylon before. D. C. II. 326. **Desmodium triquetrum.**

64. *Hedysarum gangeticum*. L. Canton. Osb. 330.

Known from Ceylon before. D. C. II. 327. **Desmodium gangeticum.**

65. *Hedysarum maculatum*. L. Danes isl. Osb. 8.

Known from India before. D. C. II. 327. **Desmodium maculatum.**

66. *Hedysarum triflorum*. L. Danes and French isl. Osb. 353. 392.

Known from Ceylon before. D. C. II. 334. **Desmodium triflorum.**

67. *Hedysarum heterocarpum*. L. French isl. Osb. 354.

Known from Ceylon before. D. C. II. 337. **Desmodium heterocarpum.**

68. *Hedysarum biarticulatum*. L. French isl. Osb. 378.

Known from Ceylon before. D. C. II. 339. **Desmodium biarticulatum.**

69. *Hedysarum pulchellum.* L. Danes island. Osb. 374.

Known from Ceylon before. D. C. II. 339. **Desmodium pulchellum.**

70. *Hedysarum lagopodioïdes.* L. Canton. Osb. 346.

D.C. II. 324. **Uraria lagopoïdes.**

71. *Hedysarum styracifolium.* L. Danes island. Osb. 8.

D.C. II. 352. **Alysicarpus styracifolius.**

72. **Abrus precatorius.** L. A sort of little red pease with a black spot. They are valued as the lowest coin and used in weighing gold. Osb. 384.

Known from India before.

73. *Uang too*, a sort of small pease of which cheese is said to be made. Canton. Osb. 305.

Glycine (Soja) hispida. Moench. The Soja bean, sin: 黃豆 *wong tau* of which Bean curd is made. First known from Japan (Kaempfer).

74 *Lack tao* is the Chinese name of a sort of pease, which are much less than our wild vetches. Osb. 304.

Phaseolus radiatus. L. sin: 綠豆 *luk tau.* First known from Ceylon.

75. **Dolichos sinensis.** L. Callvances. A dish which is like our sweet cheese and which they call *Fdou fu* is prepared of this. Osb. 218. 304.

The name of D. sinensis is first met in Rumphius' Amb. V. 375. Chinese *Bean curd* 豆腐 *tau fu* is made of different kind of beans.

76. *Dolichos scandens maximus*, with large black beans which were said to be poisonous. The pods likewise grow black, when the fruit ripens. The Chinese call it *syoe lock tao.* Osb. 394. But p. 375 Osb. gives the Chinese name of the same plant, which he observed on Danes island as *min tao.*

By the first name is probably intended 小綠豆 *siu luk tau.* According to Lour. 539 *min tau* is a variety of *Dolichos Catjang.* L. Parker gives 麵豆 *min tau* as the Cantonese name of *Cajanus indicus.* Spr. Comp. also Fl. hgk. 88 with respect to the poisonous seeds of *Canavalia virosa.*

77. **Cassia sophera.** L. Canton. Osb. 330.

Known from Ceylon before.

78. *Cassia procumbens.* L. Canton Osb. 336.

D.C. II. 504. **Cassia pumila.** Lam. E. Bot. I. 651. China. India.

79. **Tamarindus indica.** L. Canton. Osb. 309.

Known from India before. Lour. 488 mentions the Tamarind as growing in Cochinchina, not in China.

80. *Mimosa chinensis*, inermis, stipulis foliolo longe majoribus, semicordatis. French isl. Osb. 80.

Perhaps **Acacia concinna** Fl. hgk. 101.

81. **Rubus parvifolius.** L. Canton. Osb. 11.

D.C. II. 564. identifies this sp. with *R. moluccus*. Rumph. but Bth. Fl. hgk. 105. seems to exclude this synonym.

82. **Rosa indica** L. Whampoa. Osb. 198.

83. *Mo quai fa.* Canton. Osb. 209.

玫瑰花 *mei kui fa* is the Chinese name of a Rose; according to Lour. 395. *R. cinnamomea*. L.

84. **Saxifraga sarmentosa.** Lin. fil. (1781.)

This plant, a native of China, was introduced into our gardens about the middle of the last cent. Bot. mag. 92.

85. **Baeckea frutescens.** L. Danes isl. In Chin: *tiong ma.* Osb. 373.

This name *Tiongine* applied to this plant by Poiret (Lam. Enc. Bot. VII. 681.) seems to be derived from this (evidently wrong) Chin. name. Fl. hong. 118.

86. **Psidium Guajava.** L. eaten in Canton. Osb. 309.

As is known, this tree, generally cultivated in tropical countries, is a native of trop. America.

87. **Osbeckia chinensis.** L. Canton. Osb. 342. On the drawing of this plant, Tab. 2. Osbeck gives the Chinese name of it in Chinese characters, 金香蘆 *komm heong loaa* (feather of goldroses. Osb).

According to Parker the Chinese name of it in Canton sounds 鐵 | | *tip heong lo.*

88. *Melastoma octandra.* L. Canton. In Chin: *te linm.* Osb. 341.

Known from Ceylon before. D. C. III. 142. **Osbeckia octandra.** Not mentioned for China by other authors. According to Parker 地拈 *tei nim* is the Canton name for *Mel. repens.* Desc.

89. **Melastoma malabarica,** with fine red flowers. French isl. Osb. 354.

M. malabathricum. L. Known from India before.

90. **Ammania baccifera.** L. Near Canton. Osb. 387.

D. C. III. 78, 79. Linnaeus' A. baccif. seems to be a dubious plant; perhaps. *A. vesicatoria.* Roxb. (India).

91. *Lythrum fruticosum.* Lin. known to Linnaeus from China. Also in India. D. C. III. 92. **Grislea tomentosa.** Roxb. Not mentioned for China by later authors.

92. **Lawsonia inermis.** L. French isl. Osb. 354.

Known from India and W. Asia before.

93. **Lagerstroemia indica.** Lin. known to Linnaeus as a native of China, mentioned earlier by Rumphius and Cleyer (Japan).

94. **Punica Granatum.** L. Whampoa (cult.) Osb. 198.

This tree, a native of N. Africa and W. Asia, is cultivated in China.

95. **Jussiaea repens.** L. Honam. Osb. 17.

Known from Ceylon before.

96. *Trapa natans* L. in Chin: *ling kamm* or *leng ka*. Osb. 305.

Linn. fil. described the Chinese sp. as a new plant **Tr. bicornis.** The spec. cult. at Peking under the name of 菱角 *ling kio* (ling kok, Canton.) is **Trapa bispinosa** Roxbg.

97. **Trichosanthes anguinea.** Linn. Hort. Cliff. This plant was known as a Chinese plant before Linn.—Rumph. amb. V. 407,—Cucurbita sinensis fructu longo etc. Tilli Cat. pl. h. Pisani I. t. 71. (1723).

98. **Cucurbita lagenaria.** L. in Chin: *po-o* Canton. Osb. 272.

Cultivated throughout China. The Chinese sounds intended by Osbeck are probably 蒲瓠 *po u.*

99. *Cucumis acutangulus.* Lin. China. India. D. C. III. 302. **Luffa acutangula.** Ser.

100. **Cucurbita chinensis,** grows spontaneously on French isl. Osb. 362.

This name is not found in system. botan. works.

101. *Gourds*, *Melons*, and *Water melons*, which are red on the inside. Canton. Osb. 309.

102. **Bryonia cordifolia.** L. Danes isl. Osb. 374.

Known from Ceylon before.

103. *Mollugo pentaphylla.* L. Near Canton. Osb. 387.

Known from Ceylon before. Flora hgk. 23, where the plant is mentioned as a variety of **M. stricta.** L.

104. **Hydrocotyle asiatica.** L.? Danes isl. Osb. 7.

Known from Ceylon before.—Fl. hgk. 134.

105. **Celery** cultivated at Canton. Osb. 313.

Apium graveolens. L. is cultivated throughout China.

106. **Sium ninsi.** Linnaeus describes it as a Chinese plant but I am not aware that any botanist after Linn. has mentioned it for China. But the plant may be found there as it is frequently seen in Japan.

Sium sisarum. Linnaeus supposes this plant also to be a native of China, but Maximowicz. (Dec. XIII.) has proved that it is a Persian plant, which has never been gathered in China.

107. *Hydrocotyle chinensis.* Linnaeus, China. Sprengel Syst. I. 878. identifies it with **Crantzia lineata.** Nutt. an American plant. But D. C. IV. 71. considers it a dubious plant.

108. *Athamantha chinensis.* Lin. This is **Cnidium Monnieri.** Cass or *Selinum Monnieri.* L. D. C. IV. 152. Europa, Asia.

109. **Aralia chinensis.** L. a tree about 2 yards high covered with thorns. Leaves decomposite. French isl. Osb. 378.

110. **Panax quinquefolia.** L. *Ginseng,* in Chin. *yan sum* Osb. 222.

Osbeck of course does not mention it as a plant of South-China.

111. *Zanthoxylon trifoliatum.* L. a tree not observed before. French isl. In Chin: *lack fa.* Osb. 364. 394.

This is *Panax aculeatus.* Ait. or **Acanthopanax aculeata.** Benth. Hook. G. P. 939. According to Dr. Hance common in South-China.

112. **Sambucus nigra.** L. Danes isl. Osb. 8.

S. nigra is hardly found in China. The S. nigra of Lour. 226. is a different species. D. C. IV. 323.—According to Dr. Hance S. *chinensis* Lindl. is a common spec. near Canton.

113. **Nauclea orientalis.** L., in Chin: *moy fa.* Danes and French isl. Osb. 355. 395.

Known from Ceylon before. After Osbeck not gathered in China.

114. *Hedyotis herbacea.* L. ? Danes isl. Osb. 4.

Known from Ceylon before. Fl. hgk. 151. **Oldenlandia Heyniana.**

115. **Oldenlandia umbellata.** L. Near Canton Osb. 386.

Known from Ceylon before. Not observed in China after Osb.

116. **Mussaenda frondosa.** L., in Chin: *kau li mang.* French isl. Osb. 363. The characteristic white calycine leaf is not mentioned in Osbeck's description.

Known from Ceylon and E. India before. Flora hongk. 158.

117. **Gardenia florida.** Lin. See Pluken. Amalth. p. 29, *um ki.* Flora hgk. 153.

118. *Ixora coccinea.* L. in Chin: *kan long fa* or Emperor's flower. French isl. Osb. 354.

According to D.C. IV. 486. Osbeck's plant is **I. stricta.** Roxb. By Osbeck's Chinese name is probably to be understood "Flower of the Emperor Kien lung."

119. **Morinda umbellata.** L.? in Chin: *pa kock fa.* French isl. Osb. 363.

Known from Ceylon before. Flora hgk. 159.

120. **Spermacoce verticillata.** L. (description) French isl. Osb. 355.

According to D. C. IV. 541, this is an American plant.

121. **Rubia cordifolia.** Linnaeus describes it as a Chinese and Siberian plant. It is very common in North-China but I do not find it mentioned for South-China.

122. **Eupatorium chinense.** Lin. See. D. C. V. 179. Not observed in China by other collectors since Linn.

123. **Solidago chinensis** (a name given by Osb. not Linn.) Danes island. Osb. 393.

Solidago virgo aurea. L. is found in Hongkong. D. C. V. 342. states *Solidago chinensis* Spreng.=*Senecio vagans.* But Sprengel does not describe a plant of that name.

124. *Aster indicus.* L. French isl. Osb. 378.

This is **Boltonia indica.** Bth. Fl. hgk. 174.

125. *Aster chinensis.* Linn. described it first in the Hrt. Cliff. (1737) but it was previously known in Europe. D. C. V. 274. **Callistephus chinensis.** Nees. Much cultivated in Peking.

126. *Conyza chinensis.* L. Near Canton. Osb. 386.

D. C. V. 445. **Blumea chinensis.**

127. *Conyza hirsuta* L. In Chin: *ky lat soy,* also *kang gan fa.* Danes isl. Osb. 374. 394.

D. C. V. 453. **Pluchea hirsuta.** Less.

128. *Baccharis indica.* L. In Chin: *ka te gnai.* Danes isl. Osb. 394.

Known from Ceylon before. D. C. V. 451. **Pluchea indica.** Less. Flor. hgk. 179.

129. **Sphaeranthus chinensis.** Linn. Mant. 119. But he gives only India as habitat. It seems the plant has not been observed after Linn.

130. **Carpesium abrotanoides.** L. Canton, Honam, Osb. 329, 17.

Has been observed also in Formosa, India.

131. *Verbesina chinensis.* L. In Chin: *ka ling fa.* Danes isl. Osb. 393.

Fl. hgk. 180. **Anisopappus chinensis.** Hook. Arn.

132. *Xanthium orientale.* Linn. China. It is identical with *X. indicum* Roxb. and **X. strumarium.** L.—Fl. hgk. 181.

133. **Siegesbeckia orientalis.** L. In Chin: *chi mag.* Danes isl. Osb. 374.

Described by Linnaeus in 1737, but Plukenet described it previously in the Amalth. 58.

134. *Verbesina prostrata.* L. French isl. Osb. 356.

Known from India before. D.C. V. 490 **Eclipta prostrata** L.

135. *Verbesina calendulacea.* L. French isl. Osb. 356.

Known from Ceylon before. D.C. V. 539 **Wedelia calendulacea.** Less.

136. **Chrysanthemum indicum.** L. In Chin: *cock fa.* On the walls of Canton, also in pots. Osb. 6.

The Chin. name 菊花 *kok fa.* Matricaria sinensis. Rumph. Amb.

137. **Chrysanthemum indicum.** L. cultivated in gardens, Canton. Flowers as large as those of Tagetes patula, white, double or full like a round brush. Osb. 15.

138. *Artemisia minima* Linn. Chin. D.C. VI. 140 and G. P. II. 430. **Centipeda orbicularis.** Lour.—Flor. hgk. 186.

139. *Artemisia chinensis.* Lin. Sent to Linnaeus by Lagerstroem, who received the plant from China. *Absinthium maritimum Sinarum.* Pluk. Amalth. p. 3. **Tanacetum chinense.** A. Gray. Maxim. Dec. XI.

140. **Artemisia vulgaris.** L. This is the only Swedish plant in this country (Canton), though it varies in some measure with it. The Chinese heal wounds with it, and to that purpose apply the fresh plant bruised. They call it *gnai* Danes isl. Osb. 394.

A. vulgaris L. (A. indica Willd.) is very common throughout China. Sin 艾 *ngai.*

141. *Ethulia tomentosa.* Linn. China. D.C. VI. 110. **Artemisia lavandulacea,** which is identified by Maxim. Dec. XI. with *A. vulgaris.*

142. *Senecio divaricatus.* L. French. isl. Osb. 378.

D.C. VI. 301. **Gynura divaricata.** Only known from China.

143. *Cacalia incana.* L. French isl. Osb. 378.

Linnaeus' plant (from India) is dubious. **Gynura nitida.** D.C. VI. 299 ?

144. *Cacalia sonchifolia.* Linn. Ceylon. China. D.C. VI. 302. **Emilia sonchifolia.** Common in China.

145. *Lobelia zeylanica.* L. Danes island. Osb. 391.

Linn. confounds several species in his L. zeyl. and **L. trigona** Roxb. (Fl. hgk. 196.) is probably the plant Osb. saw in China. D.C. VII. 360.

146. *Black Ebony,* in Chin: *ghome* is brought to Canton from the E. Indies and from Maurice. Osb. 227.

Ebony sin: 烏 木 *u muk* seems to be produced also in China. **Maba Ebenus.** Spreng.

147. *Nyctanthes hirsuta.* L. (description.) Canton, Honam Osb. 328. 16.

D.C. VIII. 302. **Jasminum pubescens.** Willd. Also in India (Roxbg.)

148. **Nyctanthes orientalis** (name given by Osb). Wood of Roses. Canton. Osb. 209.

149. *Quai fa,* a tree about 6 yards high with small, white, sweet scented flowers. Belongs to the Tetrandria class. Canton gardens. Osb. 14.

桂 花 *kwai fa* is **Olea fragrans.** Thbg.

150. *Nerium Oleander.* Lin. Forster, Fl. sin. mentions it as known from China. I may observe, that the species generally

cultivated in China is **N. odorum.** Soland. the Oleander sinicus of Rumph. Introduced into Europe from India 1683.

151. **Periploca graeca.** L. Canton, French isl. The flowers are an ornament to our hot houses, on account of their velvet colour Osb. 336, 363.

The plant Osb. saw was hardly our European species.

152. *Fan sio* or *fay-sio*, *Convolvulus Batatas*. L. the Chinese potatoes, grow with long tendrils, which they extend along the ground. They never flower in China. Osb. 311.

Batatas edulis. Chois. Sin: 番薯 *fan shü* (Canton). At Peking also the plant never flowers.

153. *Convolvulus reptans*. L. In Chin: *or-say*. It grows spontaneously everywhere in ditches and low places. We daily eat this spinage. Osb. 313.

Known from India before. *Olus vagum*. Rumph. According to Parker **Ipomoea reptans** Poir. is called 蕹菜 *ang tsoi* in Canton.

154. **Ipomoea Quamoclit.** L. In Chin: *kam fan fang*. It adornes the hedges without the city of Canton. Osb. 210.

Known from India before. Sin: 錦屏風 *Kan ping fung* (Parker).

155. *Convolvulus pes caprae*. L. French isl. Osb. 363.

Known from India before. Fl. hgk. 238. **Ipomoea pes caprae.** Sw.

156. *Convolvulus biflorus*. Linn. described it as a Chinese plant. **Ipomoea biflora** Pers. It does not seem that this plant has been observed after Linn.

157. *Convolvulus hederaceus*. L. Canton. Osb. 326.

Pharbitis Nil. Chois. Common in tropical countries.

158. *Convolvulus hirtus*. L. with yellow flowers, in Chin *ta qua*. Danes isl. Osb. 376.

Linn. describes it as an Indian plant. It is dubious. D. C. IX. 412. *C. farinosus*. L.? But this has pink or rose coloured flowers. Perhaps *Ipomoea chryseidis* Ker. Fl. hgk. 239.

159. **Evolvulus alsinoides.** L. (description). Danes isl. Osb. 392.

Known from India before. Fl. hgk. 240.

160. They eat (at Canton) a reddish fruit like figs, but longer, and almost everywhere likewise thick, called *ay qua* or *kea*. Osb. 297.

This seems to be **Solanum melongena.** L. the Egg plant, in Chin: 茄 *K'e* or 矮瓜 *ai kua* (Canton).

161. **Solanum aethiopicum.** Lin. (Forster Fl. sin.)

162. **Solanum indicum.** L. French isl. Osb. 357.

Known from Ceylon before.

163. *Solanum diphyllum*. L. French isl. Canton. Osb. 350. 328.

Linn.'s Sol. diph. is an American plant. But Osbeck's plant is the same as **S. biflorum.** Lour. *S. decemdentatum*. Roxb. *S. Osbeckii* Dun. D. C. XIII. 1. 178. 179. Fl. hgk. 242.

164. **Capsicum frutescens.** L. Canton. Osb. 209.

Known from India before.

165. *Lycium barbarum*. L. Honam. Osb. 16.

Loureiro's and probably also Osb.'s L. barb. are. **L. chinense.** Mill. dict. 5 (1768.), which was cultivated in England as early as 1696 in the Roy. garden. (Hort. Kew 2. ed. II. 3). But there is much confusion in system. botany with respect to L. barbarum, chinense and vulgare. Meyen, obs. bot. notices L. barbarum as a plant of Macao. It seems to me that Hook. and Arn. (Voy. Beech. 267) are perfectly right in doubting, whether these species are really distinct.

166. **Datura ferox.** Linn. mentions it as a Chinese plant. It was known before him (Ph. Miller cultivated it 1731) but it seems from India. D. ferox is common in N. China.

167. **Nicotiana rustica** L. (Turkish Tobacco, universally smoked in China. Osb. 319.

168. **Nicotiana fruticosa** is described by Linn. and Miller as a Chinese plant. But as Hooker has proved (Bot. mag. 6207.) it is a little known plant received from Guinea, Brasil and the Cape of G. H.

169. *Ruellia ringens*. L. Danes isl. Osb. 370.

Known from Ceylon and India before. D. C. XI. 69. **Adenosma uliginosa.** R. Br. Osb. is quoted with a ? Not observed, it seems after Osbeck in China.

170. *Gerardia glutinosa*. L. Danes isl. Osb. 370.

Pterostigma grandiflorum. Benth. Fl. hgk. 247. **Adenosma grandifl.** G. Pl. II. 949.

171. *Gratiola virginiana*. L. Canton. Osb. 329.

Linn. confounded under this name an American and an Indian plant. The latter is acc. to D. C. X. 389. **Limnophila gratioloides.** R. Br. After Osb. not observed in China.

172. **Torenia asiatica.** L. French isl. Osb. 354. 337.

It would seem from Osb.'s statement, that Toreen, after whom Linn. named this plant, gathered it near Canton, not in India, as Linn. states. It is also not mentioned in the list of Indian plants collected by Toreen at Suratte. As we shall see further on, Toreen was in Canton at the same time when Osbeck was there. It seems however that after Osbeck T. asiatica has not been observed in S. China. *T. rubens* and *flava* grow in Hongkong.

173. *Capraria crustacea*. Linn. China. D. C. X. 413. **Vandellia crustacea.** Benth. Fl. hongk. 251.

174. *Ruellia antipoda*. Danes isl. Osb. 370.

D. C. XI. 155. **Bonnaya veronicaefolia.** Spreng.

175. *Digitalis glutinosa* Gaertn. Nov. Com. Ac. Petrop. XIV. p. 544 (1770) China. D. C. IX. 275. **Rehmannia glutinosa.** Lib.

176. *Buchnera asiatica.* Linn. Ceylon, China. D. C. X. 503. *Striga hirsuta.* Benth. **Str. lutea.** Lour.

177. **Utricularia bifida.** L. (description). Danes isl. Osb. 1.

Flora hongk. 256.

178. **Columnea? chinensis** (name given by Osb.) in Chin: *pan ge ka* is plentiful along the river side of Danes isl. Osb. 371.

I am not aware what plant is meant.

179. **Ruellia crispa.** L. (description) in Chin: *pati fa.* Danes isl. Osb. 390.

Linn. mentions it only as an Indian plant. It has not been observed in China after Osb.

180. **Barleria cristata.** L. French isl. Canton walls, in Chin: *ab key fa.* Osb. 181. 362.

Known from India before. Flora hongk. 262.

181. *Justicia purpurea.* L. (description) a new plant, in Chin: *hap key lee* or *hap key sa.* Danes isl. Osb. 372.

J. purp. was known to Linn. from the Moluccas and China **Rostellularia diffusa.** Nees. D. C. XI. 488. There is a great confusion with respect to the former name. Just. purp. of Loureiro 30 is *Peristrophe tinctoria* Nees. (D. C. XI. 498). Just. purp. Vahl is *Hypoestes purpurea* R. Br. Both of these plants have been observed in Southern China.

182. *Justicia procumbens.* L. Near Canton. Osb. 381.

Flor. hong. 265. **Rostellaria procumbens.** Nees.

183. *Justicia chinensis.* Linn. China. Flor. hgk. 266. **Dicliptera chinensis.** Nees.

184. *Verbena nodiflora.* L. French isl. Osb. 363.

Known from Ceylon before. D. C. XI. 585. **Lippia nodiflora.** Rich. Not observed in China after Osb.

185. **Vitex negundo.** L. Canton. Osb. 330.

Known from India before. Fl. hgk. 273. According to Benth. *V. incisa.* Lam. from China, cultivated in Europe since the middle of the last cent. is only a cut-leaved form of V. negundo.

186. **Clerodendron fortunatum.** L. In Chin: *hatag nang.* Danes isl. (description) smells like musk. Osb. 369.

Known from Ceylon before. Planta fortunata. Herm. Mus. zeylan. 59. Dr. Hance add. Fl. hgk. 117.—Sin: 苦燈籠 *k'u teng lung* (Parker.)

187. *Volkameria inermis.* L. Danes isl. Osb. 374.

Known from Ceylon before. Fl. hgk. 271. **Clerodendron inerme.** R. Br.

188. **Ocimum gratissimum.** L. Danes isl. Osb. 376.

Known from India before.

189. *Ocimum capitellatum*. Linn. Mant. 276. China. D. C. XII. 47. **Acrocephalus capitatus.** Benth. India orient. Not observed in China after the time of Linn.

190. *Scrophularia chinensis*. Lin. China. In D. C. X. 317 we read: Scr. chin.=*Oelsia coromandelina* Vahl cum **Salvia plebeja.** R. Br. The latter is a common plant in China. Fl. hgk. 277.

191. **Monarda chinensis.** (name given by Osbeck, description.) Danes isl. Osb. 391.

192. *Hyssopus Lophanthus*. Linn. North-China. D. C. XII. 369. **Lophanthus chinensis** Benth. Ledebour Fl. ross. III. 372. Altai mountains, Transbaicalia. Not observed in N. China after the time of Linn. But another species, *Lophanthus rugosus*. Fisch. is cultivated at Peking.

193. **Scutellaria indica.** L. (description). In Chin: *tim gam sa*. not described before by any botanist. Danes isl. Osb. 3.

Pluken. Amalth. 190. *Scutellaria sinica.*

194. **Leonurus sibiricus.** Linn. Sibiria. China. This is a common weed throughout China.

195. **Plantago asiatica.** Linn. Sibiria. China. Common in temperate Asia. According to Dr. Regel a variety of *Pl. major* L.

196 *Mirabilis odorata*. L. grows as nettles grow in our country. Canton. Osb. 326.

D. C. XIII. 2. 428. **M. dichotoma.** L. of American origin. Much cultivated in Peking.

197. *Valeriana chinensis*. Linn. French isl. Osb. 353.

D. C. XIII. 2. 455. **Boerhavia repanda.** Willd. Also in India.

198. **Celosia argentea.** L. Danes isl. Canton. Grows as a weed. Osb. 336.

First described by Linn. in the Hort. Cliff (1787).

199. **Celosia cristata.** L. in Chin: *lat-sio*. Canton. Osb. 209.

This is only a variety of C. argentea. Known from India before. Osbeck's Chin. name is wrong. *Lat tsiu* is Cayenne Pepper in Cantonese.

200. **Amarantus cruentus.** Linn. China. Known before Linn. Amar. sinensis. Martyn cent. 6. (1728.)

201. **Amarantus tristis.** L. in Chin:. *in soy*. Its leaves are used instead of cale. French isl. Osb. 350.

Known from India before. 莧 菜 *in ts'oi* is a general name for Amarantus.

202. *Achyranthes lappacea*. L. Canton. Osb. 329.

Known from India before. D. C. XIII. 2. 331. **Pupalia lappacea.** Mocq.

203. **Achyranthes aspera.** L. Canton. Osb. 336.

Known from India before. Fl. hgk. 285.

204. **Achyranthes chinensis.** (name given by Osb. botan. description.) Canton. Osb. 329.

205. **Gomphrena globosa.** L. Canton. Osb. 209.

Known from India before. Introduced in Europe 1714.

206. *Spinage* is called *bout-say* in Canton. Osb. 318.

The Chin. name for **Spinacia oleracea.** L. is 菠菜 *po ts'oi.*

207. *Chenopodium scoparium.* Linn. China. D: C. XIII. 2. 130. **Kochia scoparia.** Schrad. Common weed in North-China.

208. **Basella alba.** Linn. China. Known also from the Indian Archip. Japan. After Linn. not mentioned for China.

209. **Basella rubra.** L. in Chin: *tand soy.* The spots which the berries make in white linen are very hard to be got out. Canton factory. Osb. 12.

Known from India before. Sin: 藤菜 *t'ang ts'oi* (Parker) Flor. hgk. 283.

210. **Polygonum barbatum.** L. in Chin: *ka yong mosa.* French isl. Osb. 353.

Common in S. China.

211. **Polygonum orientale.** L. in Chin: *yong mosa.* French isl. Osb. 353.

Known from India before. Common in China.

212. **Polygonum chinense.** L., in Chin: *ka yong ma.* Danes isl. Canton. Osb. 393. 330.

Common in S. China. Sin: 火炭毛 *fo than mu.* (Parker.)

213. **Rheum palmatum.** Linn. China. Seeds of the true Rhubarb plant, observed in 1872 near lake Kukonor by Col. Prczewalsky, were first received in Kiakhta, in 1750, and since that time the plant is cultivated in Europe.

214. **Rheum undulatum.** Linn. Rhabarbarum sinense Amman Herb. 206. The seeds of this had been received in 1740 from Siberia, its native country. Linn., who thought, that it was of Chinese origin, described it under the name of *Rh. Rhabarbarum.*

215. **Rheum compactum.** Linn. gives as habitat China, Tartary. It is stated to have been introduced in 1758 from Tartary. Pallas observed it in Dauria. It is not found in China.

216. **Piper betle.** L. Canton. Osb. 314.

Fl. hgk. 335 describes the *Chavica sarmentosa.* Miq. which is very near the Chav. betle. But the true Betle pepper is also cultivated in S. China.

217. A Chinese told to Osb. that the Camphor tree, **Lauurs Camphora,** was found near Canton, and called *tyong sio*. Osb. 253.

This tree was known to Linn. only from Japan. Sin: 樟樹 *tiong sio* (Fu chou dialect.)

218. **Cassytha filiformis.** L. Climbs on the Euphorbia. Danes isl. Osb. 395.

Known from India before.

219. *Daphne indica*. L. (description.) Danes isl. Osb. 6.

D. C. XIV. 543. **Wickstroemia indica.** C. A. M. Not found in India.

220. **Loranthus scurrula.** Linn. China. According to Benth. Fl. hgk. 141 this is, probably the *L. chinensis*. D. C. gathered by Staunton in China, but not as Linn. thinks the species represented in Petiver's Gazophyl. Tab. 63, fig. 8.

221. **Viscum** baccis rubentibus. Kaemph. amoen. 785. French isl. Osb. 353.

Kaempfer's plant, quoted by Osb. is *V. Kaempferi*. D. C. IV. 285. The Fl. hgk. 141 notices for Hongkong *V. articulatum*. Burm. and *V. orientale*. Willd.

222. **Euphorbia neriifolia.** L. used for hedges. Canton. In Chin: *fu yong fa*. Osb. 328. 336.

Known from Ceylon, India, before. Sin: 火秧花 *fo yong fa* (Parker.)

223. *Andrachne fruticosa*. L. Danes isl. Osb. 368.

Flor. hgk. 313 *Melanthesa chinensis* Blume. G. P. III. 276. **Breynia fruticosa.**

224. *Agyneia pubera*. L. and *Agyneia impubes*. L. Both known to Linn. as Chinese plants. D. C. XV. 2. 307 considers the second to be only a variety of the first, as do also Benth. and Hook. G. P. III. 271. Müller in D. C. l. c. refers both to **Phyllanthus puberus,** of which he enumerates 4 varieties. Two of these have been observed in China by Fortune and others, but for the above mentioned varieties Müller quotes only Linnaeus.

225. **Phyllanthus niruri.** L. Danes isl. Osb. 2.

Known from Ceylon before.

226. *Croton tomentosus*. Müll. D. C. XV. 2. 588. states that he has seen in Linnaeus' herbarium a specimen of this plant brought by Osbeck from China. It seems that Osbeck does not mention it. **Croton crassifolius.** Geisel is the oldest name and must be restored. *Cr. chinense* Bth. Fl. kgk. 309. is the same.

227. *Croton sebiferum*. L. a little tree, which the Chinese call *o-ku-o*, and at at first sight looks like an asp. It has yellow flowers. Danes and French isl. Osb. 359, 5.

Stillingia sebifera. Mchx. Sin: 烏桕 *u kau.*

228. *Humulus lupulus.* L. Canton. Osb. 336.

This is H. japonicus. S. et Z. common throughout China.

229. *Ficus indica.* L. with round figs. Canton wall. Osb. 381, 215.

This is probably Ficus retusa. L. the Bastard Banyan, very common in S. China; also in India.

230. **Ficus pumila.** Linn. China (Forster Fl. sin.) known also from Japan, introduced in Europe 1759. Loureiro mentions it only for Cochinchina. It is not found in the Fl. hongk. But Dr. Hance has seen specimens of it from Formosa.

231. **Morus alba.** Linn. China.

232. *Urtica nivea.* L. on the walls of Canton. Osb. 215, 381.

Known from India before. Boehmeria nivea. Hook. and Arn. Flora hgk. 331.

233. **Thuja orientalis.** L. Canton. Osb. 209.

Known to Linn. from China before, described in the Hort. Cliff (1737) Seeds received from China. *Biota orientalis.* Endl.

234. **Juniperus chinensis.** Linn. Mant. (1767). China.

235. *Latt fa* is the Chinese name of a little tree (Canton), which looks like the Yew tree, but the leaves are ornamented on the inferior side with white strips, running length-ways as in Pinus balsamea, or the Phalaris picta. It seems to be *Taxus nucifera.* L. or the *Fi* of Kaempf. Amoen. 814.

The Japanese tree alluded to by Osb. is *Torreya nucifera.* S. et Z. not found in China, as far as I know. But *Torreya grandis* has been observed by Fortune in Chekiang. D. C. XVI. 2. 505.

236. *Abies chinensis.* Chinese pine. French isl. Osb. 348. The timber of which their ships are built is called *saao mock.* Osb. 196. *Shau pann* is the Chinese name of that sort of wood, from which they make coffins. Osb. 228.

All these names refer it seems to Cunninghamia sinensis. R. Br. D. C. XVI. 2. 432. Sin: 杉木 *sha muk.* Boards of that timber are called 丨板 *sha pan.*

MONOCOTYLEDONS.

237. **Musa paradisiaca.** L. Plantain tree, called *Tseu* by the Chinese. Canton. Osb. 308. In a note Forster states, that the plantain tree has flowered for the first time in the Upsal garden, and has also brought forth ripe fruits.

The Chinese name of the Plantain, which is cultivated in S. China, is 蕉 *tsiu.*

238. *Musa Cliffortiana.* L. Canton. Osb. 341.

There is no difference between this and M. paradisiaca.

239. **Canna indica.** L. Canton. Osb. 330.

A native of India, frequently cultivated in China.

240. *Maranta Galanga.* Linn. China. *Galanga major.* Rumph. **Alpinia Galanga.** Swartz. Fl. hgk. 348.

241. **Curcuma chinensis.** (name given by Osb.) Canton. Osb. 329.

242. *Epidendron ensifolium.* L. planted in flowerpots. Its flowers have an exceeding fine scent. Canton. Osb. 15.

Cymbidium ensifolium. Sw. Much cultivated in China.

243. *Ixia chinensis.* Linn. (Forster Fl. sin. from China) cultivated 1759 by Ph. Miller. **Pardanthus chinensis.** Ker.

244. **Narcissus Tazetta.** L. flowers in January. Canton. In Chin: *soi sinn fat.* Osb. 209.

Frequently cultivated in China. Sin: 水 仙 花 *shui sin fa.*

245. **Dioscorea alata.** L. Yams, in Chin: *tilai sio.* Cultivated, Canton. Osb. 311.

Known before from Ceylon, India. Sin: 大 薯 *t'ai shu* (in Canton.)

246. **Convallaria chinensis.** Osb. 353. Canton.

I am not aware what plant is meant.

247. **Smilax China.** L. China root, in Chin: *long fun tao.* It grows near the river on dry hills and is very cheap in Canton. Osb. 255. 9.

Cmp. Hance Add. Fl. hgk 130.

248. **Smilax Sassaparilla.**. L. Danes island. Osb. 10.

It was certainly not this American species, which Osb. saw there.

249. *Dracaena ferrea.* L. The Iron tree (description.) in Chinese *tat sio.* Canton gardens. Osb. 14.

Cordyline Jacquini. Kth. V. 24. Sin: 鐵 樹 *tih shū.*

250. Two sorts of *Leek* are cultivated at Canton, viz. *tsong* and *lo fra.* Osb. 309.

By the first sound evidently 葱 tsung, *Allium fistulosum.* (Peking.) in intended.

251. **Hemerocallis fulva.** Linn. China. Common in China, cultivated and wild.

252. **Commelyna communis.** L. Danes isl. Osb. 393.

Known from Ceylon before. Common in China.

253. **Commelina chinensis.** (name given by Osb.), in Chin: *Katyaa.* Danes isl. Osb. 393.

254. *Oo tao* are roots so called by the Chinese. They cannot be eaten raw because the acidity would prevent the action of swallowing. Osb. 310.

The name of 芋頭 *u tau* is applied to several species of **Colocasia** with edible tubers, viz: *C. esculenta.* Schott., *C. antiquorum.* Schott., *C. indica.* Kth.

255. *Lemna.* Ḥonam. Osb. 17.

Probably **Lemna minor.** L., which is very common in China.

256. **Sagittaria** bulbis oblongis. Canton. In Chin: *succoyee fu.* Osb. 334.

We know two species of Sagittaria from S. China, viz: *S. chinensis.* Sims. and *S. cordifolia* Roxb. Fl. hgk. 346. I think it is the former which is largely cultivated in China for the sake of its edible roots under the name of 茨菰 *tsz' ku,*—*Sagittaria trifolia.* L. (China.) is according to Kth. III. 157. perhaps S. chinensis.

257. **Eriocaulon sexangulare.** L. Near Canton. Osb. 386.

Known from Ceylon before. Hance Add. Fl. hgk. 130.

258. **Cyperus Iria.** L.? Danes isl. Osb. 371.

Known from India before. Fl. hgk. 386. Common in China.

259. **Cyperus haspan.** L. Danes isl. Osb. 376.

Known from India before. Fl. hgk. 386. Also in America.

260. **Cyperus oderatus.** L. French isl. 361.

This is an American species.

261. **Cyperus dichotomus.** L.? Danes island. Osb. 371.

This name is not found in Kth. enum. pl.

262. **Cyperus rotundus.** L. Whampoa. Osb. 199.

Flor. hgk. 387. Widely diffused, New and Old World.

263. *Scirpus glomeratus.* L. Canton. Osb. 326.

Known from India before. Kth. enum. II. 133. **Kyllingia triceps.** Rottb.

264. *Scirpus chinensis,* culmo triquetro subnudo. Rheede Malab. XII. 71, motto pulla. French isl. Osb. 354.

Kth. II. 202. identifies the motto pulla with *Scirpus squarrosus.* L. or *Isolepis squarrosa.* Roem. Schult, an Indian plant, not found in China. But Bth. Fl. hgk. 389. states that *Lipocarpha microcephala* R. Br. found in Hongkong, closely resembles the former. Osbeck's Sc. chinensis is not to be confounded with Sc. *chinensis* Munro. Fl. hgk. 395.

265. **Saccharum officinarum.** L. Sugar Cane. In Chin: *kee a.* French isl. Cultivated. Osb. 350.

266. **Saccharum chinense** (name given by Osb.) grows in the river (Canton) like reeds. In Chin: *mao.* Osb. 10.

茅 *mao* is according to Lour. 67 *Saccharum spicatum* L. or *Perotis latifolia* Ait. Fl. hgk. 418. Osb.'s plant is not to be confounded with *Saccharum chinense.* Roxb.

267. **Saccharum pluviatile** (not a Linnaean name). Whampoa. Osb. 199.

268. **Andropogon schoenanthus.** L. Canton. Osb. 346.

Known from Ceylon, India before.

269. **Andropogon ischaemum.** L. Canton. Osb. 346.

Europa, Siberia. Frequent in N. China.

270. *Andropogon fasciculatum*. L. Canton. Osb. 346.

Kth. I. 265. **Chloris radiata.** Sw. an American plant.

271. **Ischaemum aristatum.** L. Danes isl. Osb. 376.

It is found also in India but has not been observed in China since the time of Linn.

272. **Apluda mutica.** L. Canton. Osb. 330.

Fl. hgk. 422. Found also in India.

273. *Panicum crus galli*. L. Canton. Osb. 346.

European species, the same as **P. crus corvi.** L. Also common in China.

274. **Panicum alopecuroides.** L. Danes isl. Osb. 375.

Kth. I. 163. *P. Linnaei*. India orient.

275. *Panicum arborescens*. L. Canton. Grows from 10 to 12 feet high and is very ramose. Osb. 330.

Known from Ceylon before. Kth. I. 426. **Arundinaria glaucescens.** Beauv.

276. **Panicum glaucum.** L. Danes isl. Osb. 374.

Flora hgk. 411. Europa, Asia.

277. **Panicum patens.** L. Canton. Osb. 346.

Kth. I. 126. India orient.

278. *Paniçum dissectum*. L. Canton. Osb. 346.

This is a plant of S. America. Forster Fl. sin. means, that Osb. probably saw **P. dimidiatum.** L. (India orient.)

279. **Panicum brevifolium.** L. Canton. Osb. 346.

This is a plant of Mexico.

280. *Alopecurus hordeiformis*. L. Danes isl. Osb. 376.

Kth. I. 158. *Gymnotrix cenchroides*. Roem. et Sch. **G. hordeiformis.** Nees. India orient. C. B. Sp. Peking (Hance.)

281. **Oryza sativa.** L. The Chinese call the Rice *waa*, while it is yet in the ground. Osb. 350.

禾 *wo*, growing grain, Paddy in the southern provinces (Williams.)

282. *Kow-sonn* is the Chinese name of white, long roots, of the thickness of Parsneps, the extremes of which had been cut off, and with which a sampan, that passed by, was quite filled. They were tied into bunches with their ensiform leaves, and were offered to sale. Osb. 11.

I have no doubt, that Osb. saw **Hydropyrum latifolium.** Griseb. the basis of the stem of which is a vegetable much in esteem among the Chinese. Comp. Dr. Hance's interesting article on the subject. Journ. Bot. 1872. 146. The Chinese call it 茭 笋 *kao sun*. It is cultivated in Peking as well as in Canton, and grows wild in Southern Sibiria.

283. *Agrostis indica.* L. Canton. Osb. 346.

Widely diffused over the warmer regions of the globe. Fl. hgk. 426. Sporobolus indicus. R. Br.

284. *Aira* seminibus hirsutis, aristis terminalibus flore longioribus. French isl. Osb. 354.

Eriachne chinensis. Hance. Add. Fl. hgk. 136.

285. *Holcus latifolius.* L. Danes isl. Osb. 8.

Kth. I. 366. Centotheca lappacea. Desv. Found in India, the Indian Archip., Australia.

286. **Briza elegans** (not a Linnaean name). Canton. Osb. 6.

287. *Poa chinensis.* L. Canton. Osb. 330.

It seems, that this is the Leptochloa chinensis. Nees. Fl. hgk. 430. Nees gives as synonym *P. chinensis.* Roth. See Kth. I. 270.

288. **Poa malabarica.** L. Canton. Osb. 29.

Kth. I. 365. India orientalis.

289. **Poa angustifolia.** L. French isl. Osb. 378.

European species.

290. *Poa tenella.* L. Canton. Osb. 330.

Known from India before. Fl. hgk. 431. Eragrostis tenella. Beauv.

291. *Cynosurus aegyptiacus.* L. Danes isl. Osb. 376.

Common weed in warm countries. *Eleusine cruciata.* Lam. Dactyloctenium aegyptiacum. Willd.

292. *Arundo Bamboo.* L. Bamboo roots is what we call Asia, when preserved with salt, vinegar, leek, and Capsicum. Paper is made of the inner bark of Bamboo. Osb. 310, 276.

Munro in his article on Bambusaceae (Trans. Lin. Soc. XXVI.) states, that the Chinese bamboo of which Osbeck speaks, which is said to flower once in 60 years, is Bambusa flexuosa Munro, gathered also by Staunton.

293. A reed which the Chinese call *lu ta.* It looks like **Arundo Donax.** Near Bocca Tigris. Osb. 29.

蘆笪 *lu ta* (Williams' Dict. p. 840). Comp. also Dr. Hance Journ. Bot. 1879. p. 99.

294. **Nardus articulata.** (name given by Osb.) Canton Osb. 346.

295. **Nardus ciliaris.** L. French isl. Osb. 353.

Kth. I. 461. species dubia. India orient.

CRYPTOGAMS.

296. **Lycopodium cernuum.** L. French isl. Osb. 356.

Common throughout the tropics.

297. **Lycopodium nudum.** L. French isl. Osb. 356.

East and West Indies.

298. **Lycopodium varium.** French isl. Osb. 356.

This is not a Linnaean name. *L. varium.* R. Br. is an Australian plant and has probably nothing to do with Osbeck's plant.

299. *Ophioglossum scandens.* L. In Chin: *ka yin sey.* Danes isl. Osb. 375.

Known from Ceylon before. Fl. hgk. 441. **Lygodium scandens.** Sw.

300. *Polypodium varium.* L. Danes isl. Osb. 9.

Known also from India. Hce. Add. Fl. hgk. 140. **Aspidium varium.** Sw.

301. *Polypodium Barometz.* L. French isl. Osb. 356.

Cibotium Barometz. J. Sm. India, China. Add. Fl. hgk. 143.

302. *Polypodium cristatum.* L. French isl. Osb. 356.

This is an European species. **Aspidium cristatum.** Sw.

303. **Pteris semipinnata.** L. In Chin: *ka lao.* Danes isl. Osb. 375. New plant.

Fl. hgk. 448. China. India.

304. **Pteris vittata.** L. Canton walls. Osb. 381. New plant.

305. **Acrostichon punctatum.** Lin. China. (Forster Fl. sin.)

306. **Acrostichon dichotomum.** Lin. China (Forster Fl. sin.)

307. **Adiantum flabellatum.** L. (description) in Chin: *siag mao quang.* Danes isl. Osb. 7.

Adiantum chinense perelegans. Pluk. Alm. 11 (see above). Common in S. China.

308. **Blechnum Orientale.** L. French isl. Osb. 375.

Flor. hgk. 444. Also in India.

309. **Onoclea sensibilis.** L. or Filix indica, Polypodii facie. Menz. pag. 6. tab. 10. Danes isl. Osb. 371.

This is an American species.

310. *Trichomanes chinensis.* L. Danes isl. French isl. A new plant. Osb. 357, 9.

Davallia chinensis. Sw.—Sprengel Syst. IV. 120 refers to this species also *Adiantum chusanum.* Linn. Syst. veg. p. 940.

311. **Jungermannia chinensis** (name given by Osb.). See Dill. Musc. t. 49. fig. 4. French isl. Osb. 356.

312. **Lichen chinensis.** Osb. French isl. Osb. 356.

313. **Lichen parietarius.** L.? or very like our L. parietarius, Danes isl. Osb. 8.

314. *Lichen* (Euphorbiae.) foliaceus pulverulentus. French isl. Osb. 378.

315. **Agaricus chinensis.** Osb. French isl. Osb. 356.

316. **Boletus favus.** Linn. China.

317. *Siun*. Chinese Truffles are carried for sale in the streets of Canton. Osb. 312.

[illegible]'*sun* is a general term for Mushrooms. Comp. Loureiro 849. *Agaricus deliciosus.*

318. **Byssus flos aquae.** Linn. (Forster Flora sin.)
319. **Fucus Tendo.** Linn. China.

Dubious Chinese plants mentioned by Osbeck.

Cryptanthus chinensis. Small bushes bearing a great resemblance to Blackberry bushes. Leaves opposite, as large as those of the Rosemallow, cordated, obtuse; their margin is unequally serrated, they are somewhat rough at the top, but smooth below and have at least 8 pretty large veins. The flowers are white, double and grow in bunches at the top of the branches. Near Canton. Osb. 345.

There is no Linnaean genus *Cryptanthus* and the genus of this name proposed by Nuttal (Salsolaceae) is even not mentioned in the Gen. Plant.

For the food of gold and silver fishes a species of plant is put into the water, the leaves of which resemble *Ceratophyllum demersum* and *Pistia stratioides*. They call it *Siu yan gai*. Osb. 208.

Large high trees called *leean see*. Canton. Osb. 325.

Laan fa a tree with yellow corymbose flowers and pinnated leaves. Canton gardens. Osb. 14.

Ka tong qua, a shrub, which twists round other plants. Leaves heart-shaped, thick. Corolla 4 fid, 4 filaments, 1 pistil. Danes isl. Osb. 374.

Kay in. Leaves lanceolate and woolly on the under side. Flowers blue. 4 filaments. Pistil longer than the filaments. Danes isl. Osb. 374.

Ko su or *Yum ko sua* is the name, which the Chinese give to the great trees, which grow near the plantations. Osb. 9.

Pa lamm is the name of the leaves with which they cover their fruit baskets. Osb. 9.

Ka toa is a long climbing plant with round leaves and red flowers. Danes isl. Osb. 394.

OLAF TOREEN, Chaplain of the *Gothic Lion*, a Swedish East India man, visited Canton at the same time, when Osbeck was there. The Gothic Lion anchored at Whampoa on the 7. July 1751 and left the 4. Janr. 1752. Toreen presented to Linnaeus, his instructor, a collection of Indian plants, chiefly from Suratte, where he had made a stay of more than 5 months. It would seem that he gathered also some Chinese plants. I have already stated (see above Linn. Chin. plants. 172.) that *Torenia asiatica*, named by Linnaeus after Toreen, was probably brought from China, not from India. In D. C. V. 543 I read under *Pluchea* (*Conyza*) *hirsuta*: China (Torr. ex Linn.) I cannot now refer to Linn.'s original work in order to decide whether Toreen is quoted. Toreen died a year after his return to Sweden. Linnaeus published the letters Toreen had addressed to him during his voyage. In his narrative there is nothing of interest concerning Chinese botany. He speaks of some cultivated plants and reports, that the Tea shrubs he took with him on his return, died, on the road, notwithstanding his care.

The third account of Swedish naturalists in China translated by Forster, is a Treatise on **CHINESE HUSBANDRY** by **CHARLES GUST. ECKEBERG.** Eckeberg was Captain of a Ship in the Swedish E. I. Comp.'s service. We know from Sparrmann's brief account of his voyage to China, (see further on) that Eckeberg was Captain of the Navarcha and that this ship arrived at Canton Aug. 24. in 1766. It was at this place, that Eckeberg made his observations on Chinese husbandry, on which subject he subsequently published a very interesting account, of which I shall give an abstract. It seems that E. had previously visited Canton, about 1762.

E. states that *Rice* is largely cultivated in the neighborhood of Canton. But he saw also *Wheat* there and *Barley*.

He mentions a coarse species of plant, with thin roots, whose leaves, flowers and seed capsules were like those of *Radishes*. These were sown in the beginning of Dec. In Febr. they were all in blossom, but in April the seed capsules turned yellow, and then the plants were plucked, dried, and the numerous seeds beaten out. From the seeds they press an oil, which they turn to many purposes in economy, but especially they burn it in lamps, and dress several dishes with it while it is fresh. The oil is so fat, that it cannot be used in painting, because it will not dry. The soot which comes from the lamps in which this oil is burnt is used in making the well known Indian ink.

The plant here alluded to is the *Raphanus chinensis annuus oleiferus*, L. *Raphanus sativus*, var. *oleifera*. D. C. I. 228. It is stated in the Collect. acad. partie étrang. XI. 379 (quoted by Grosier, la Chine III. 294. I have not seen the original.) that the seeds of this plant, which the Chinese cultivate under the name of *sui fa* or *sui fa tun*, had been supplied by Eckeberg and sown in Sweden, where they produced a good crop. I am not prepared to say what Chinese name is intended by sui fa tan. Evidently it has been incorrectly rendered.

It seems to be the same plant, which Osbeck II. p. 29 mentions. 21. Dec. 1752. The high fields about Bocca Tigris (mouth of the Canton river) were green with a plant out of whose seeds the Chinese press the oil, which they call *loam*, and which is most probably Sesam.

Fortune (Wander. 55.) states, that the Cabbage oil plant of the Chinese in Chusan, Chekiang, Kiangsu is *Brassica chinensis*. L.

Commonly the seeds of *Cotton*, which they call *min foo* succeed to those oily seeds. They are sown in April. Flowers appear in July, pods in August.

The Cotton plant, 棉 花 *min fa*, in Canton.

Potatoes, which they call *fow cee* make the third and last crop, which they plant after the cotton crop being over. These potatoes are different from ours. The roots have red peels, are longer, yellow, sweet, but the leaves are like those of European potatoes.

E. means evidently *Batatas edulis*. Chois (s.above Lin. Chin. pl. 152.) sin : *fan shŭ*, but he is mistaken with respect to the leaves.

Sometimes the place of Cotton is supplied with lentils, beans *Locktaws* and *Calvanses*.

Luktau is *Phaseolus radiatus* L. (Lin. Chin. pl. 74.) Calvanses=*Dolichos sinensis*. *L.*

Yams, which they call *ou taw* are planted like potatoes but set in swampy wet places.

Colocasia (Lin. Chin. pl. 254.)

After this some particulars with respect to the cultivation of the *Sugar cane* by the Chinese are given.

In the kitchen gardens they cultivate *Salads*, long and short *Cucumbers*, *Leeks*, white O*nions*, *Spinage*, *Celery*, *Carrots*, *Orach*, a species of watery *Turnips*, long *Radishes*, *Gourds*, and *Water melons*. Of these they have procured the seeds from the Portuguese. *Purslane* grows wild. They keep a coarse sort of *Water Spinage* in ponds about ½ fathom deep, in which it grows so plentifully, that it quite covers the surface of the water. This is one of the most usual pot herbs.

This Water spinage seems to be *Ipomoea reptans*. Poir. See above Lin. Chin. pl. 158.

After this E. speaks of the cultivation of *Ginger* and of *Tobacco*, *yeen* of the Chinese.

They cultivate a plant, which they call *fock yong*, not unlike *Mint*, but with paler leaves. They value this plant very highly and sell the pekul of it for 50 tael. It is said to be of great service in consumption.

Perhaps 藿香 *hok hong*, which Lour. 441 thinks to be a *Betonica*. In Peking *Lophantus rugosus*. Fisch. is cultivated under this name.

The greater and the less *Palma Christi* (the less in particular *Ricinus*) is planted everywhere. The kernels being pressed afford a white clear oil.

Instead of cabbage they use a plant with great coarse leaves like those of Burdock, all issuing out of a little root. The yellow flowers, the stalk with the pods, and the seeds themselves are like *Cale*. They daily use this plant and therefore it goes off so fast, that they immediately sow the void beds with it again. It grows very fast in all seasons. They boil and dry it and take it with them upon sea voyages.

Besides this the Tartars of Peking have a species of *White Cale* with long, narrow heads, which is scarce in Canton.

The first mentioned is probably *Sinapis brassicata*. L. (Lin. Chin. pl. 10.) which is distinguished by its large leaves, the second *Brassica chinensis*. L. which does not form heads.

Eckeb. then enumerates the following fruits: *Citrus decumana*, *sweet Oranges*, which come to great perfection in Fokien, Amoy, little sour *Citrons*, *Leicki*, *Lonyan*, *Mango* trees, *Olives*, *Pear*-and *Apple* trees, and likewise *Grapes*.

The *Betle* bushes grow spontaneously without being planted.

I may finally mention, that according to Linnaeus Eckeberg was the first, who succeeded in bringing a living *Tea* shrub to Europe, which Linn. received 3. Oct. 1763.

Lindley Rosar. Monogr. 108 quotes Eckeberg in connection with *Rosa semperflorens*. Curt. China.

Sparrmann has dedicated to Eckeberg a new genus of plants, *Eckebergia*. (Meliaceae.)

A small collection of S. Chinese plants was made by **Andreas Sparrmann** in 1766. A brief account of his voyage to China and his botanical investigations there is found in Linnaeus' Amoenitates academ. vol. VII. 1769. p. 497—506. Sparrmann, born 1747, a Swedish botanist and traveller, visited besides China also the Cape of G. H. (1771-72). He died 1787 and has written many botanical articles in the Act. acad. holm. and in Nov. act. soc. Upsal. Linn. fil. dedicated to him the genus *Sparrmannia* (Tiliaceae.) As to his voyage to China he states that Capt. Eckeberg had invited him to accompany him. Their ship, the Navarcha passed by Macao 24. Aug. 1766 and anchored not far from the city of Canton 26. Aug. Sparrmann enumerates the following plants gathered at that place:

Thea Bohea. Linn. Chin. pl. 16.
Ixora coccinea. l. c. 118.
Rhamnus lineatus. l. c. 48.
Baeckea frutescens. l. c. 85.
Triumfetta Barthramia l. c. 31.
Urena procumbens. l. c. 24.
Barleria cristata. l. c. 180.
Hedyotis fruticosa. D. IV. 123.
Planta dubia. *Spermacoce?*
Sinapis brassicata. Linn. Chin. pl. 110.
Polygonum chinense. l. c. 212.
Torenia asiatica. l. c. 172.
Aralia chinensis, sed tota glabra. l. c. 109.
Verbesina calendulacea. l. c. 135.
Cucurbita citrullus. l. c. 101.
Hedysarum biarticulatum. l. c. 68.
Tamarindus indica. l. c. 79.
Citrus decumana. l. c. 41.
Citrus aurantium. l. c. 34.
Bromelia Ananas.

In my notice of the services rendered by Swedish naturalists with respect to the investigation of Chinese Botany, I ought not to omit mentioning the name of **MAGNUS VON LAGERSTROEM,** born in 1696. He was an ardent naturalist and a friend of the Great Linnaeus. His position as Director of the Swedish East India Comp. at Gothenburg enabled him to procure many rare objects of natural history from India and China, which he used to present to Linnaeus. He died in Gothenburg in 1759. Linnaeus dedicated the genus *Lagerstroemia* to his friend. Toreen in his letters repeatedly speaks of Lagerstroem.

There is in Linn. Amoen. acad. IV. p. 230—266 a paper by *J. L. Odhello,* written in 1754, devoted to the *Chinensia Lagerstroëmiana.* The author reports, that Lagerstroem had obtained from India not only dried specimens of plants, but had also succeeded in introducing living plants from those distant countries into the botanical garden of Upsala. He enumerates namely: *Cocos, Phoenix, Cycas, Saccharum Pentapetes,* various species of *Hibiscus, Sanguis Draconis, Bambu, Conysa, Amaranthus, Arum chinense* (I do not know to what plant the last name refers. There is no Chinese Arum in Linn. Spec. Plant.)

Besides this, Lagerstroem is stated to have been possessed of a *Botanicon chinense,* written in Chinese characters, in 36 volumes, of which 2 volumes contained engravings of plants, beasts, and minerals. (This was probably the well known *Pen ts'ao kang mu.*) Lagerstroem had moreover received from China a collection of about 1000 Chinese drugs.

IV. EARLY RESEARCHES INTO THE FLORA OF PEKING.

Let us return again to the Jesuit missionaries and continue to illustrate the services they have rendered in extending our knowledge of the vegetable products of China.

We have first to consider in this chapter the merits of Father **Petrus d'Incarville** in having sent to Europe dried plants and seeds from North-China. He was a Frenchman born in 1706. In 1740 he joined the Chinese mission of the Jesuits and died in 1757 at Peking, where he seems to have labored during the whole period of his sojourn in China. D'Incarville's name has been repeatedly inscribed in the annals of botanical science. From the seeds of various Peking plants procured by him a number of interesting new species, now-a-days much cultivated in Europe, have been raised. A. L. de Jussieu dedicated to him the genus *Incarvillea* represented by one species only, the *I. sinensis*, a beautiful Bignonaceous plant with large scarlet flowers, met frequently with in the Peking plain and in the mountains, towards the end of summer.

Besides this, D'Inc. transmitted to his instructor Bernhard de Jussieu in Paris a collection of dried Peking plants. I am not aware to what number of species this collection amounts. It has been incorporated with the herbarium of the Museum of Paris, but has never been worked up in any regular form. Only a few new plants of it have been occasionally selected for publication by French botanists, and, it is strange to say, from 30 to 80 years and more after the specimens were received in Paris. As far as I have been able to trace out from various botanical works, the name of Inc. is connected with the following Chinese plants, of which he has supplied dried specimens or seeds.

1. **Ailantus glandulosa.** Desf. Inc. first mentions this tree under the name of *Frêne puant* (stinking Ash.) in a memoir on Chinese wild silkworms, published a long time after his death by Cibot in the 2d vol. of the Mém. conc. les Chin. (1777.) p. 583. According to Loudon (Arb. et Frut.) seeds of this tree, sent by d'Incarville, had been received in England in 1751. It was cultivated in France also, but described for the first time by Desfontaines only in 1786.

2. **Cedrela sinensis.** Adr. Jussieu. Inc. mentions this tree in the above quoted memoir, p. 583, as *Frêne odorant.* From the dried specimens of it sent to Bernh. Jussieu in 1743, Adr. Jussieu described it for the first time in 1830.

3. In the same memoir, p. 583, Inc. speaks of an *Oak* (of Shantung province it seems) which he means to be identical with Quercus orientalis castaneae folio, glande recondita in capsula crassa et squamosa, which he had seen cultivated in Paris and in Toulouse. Lamarck Enc. Bot. I 719, refers this

diagnosis (Tournef.) to a variety of *Quercus aegylops* L. of the Levant. But there can be no doubt that Incarville's Chestnut oak is the **Quercus chinensis.** Bge., very common in North-China.

4. **Xanthoxylum Avicennae.** D. C. It was first described by Lamarck l. c. II. 445, in 1786, under the name of *Fagara Avicennae*, from a specimen sent by Incarville, probably from the province of Shantung. It seems this is his Fagara or Poivrier de Chine, the leaves of which are used to feed a kind of silkworm. (see the above mentioned memoir.)

5. **Syringa villosa** first described by Vahl 1805, from specimens gathered by Incarv. in the mountains of Peking.

6. **Incarvillea sinensis,** described by A. L. Jussieu in 1789. Lam. l. c. III. 243.

7. **Dicentra spectabilis** Miq. *Fumaria spectabilis.* L.—Lam. l. c. II. 571, saw dried specimens of this plant sent by Incarv. in Jussieu's herbarium. (comp. also above Linn. Chin. pl. 4.)

8. **Polygonum tinctorium.** Lour. Grosier (la Chine III. 276) reports that Inc. had sent to Paris seeds of the *Peking Indigo* (which is Pol. tinctorium.) accompanied with a memoir on the cultivation of the plant and directions for the extraction of its coloring matter. Jussieu cultivated the plant in the Royal Garden.

9. **Callistephus chinensis.** Nees. *Aster chinensis.* L. Thouin (Diction. d'Agriculture 1. 710.)* states that seeds of the "Reine Marguerite" sent by Incarv. to Jussieu had been for the first time received in 1728. There seems to be some misapprehension. Seeds of the Chinese Aster or Reine Marguerite may have been sent by Incarville but not in 1728, for he arrived in China only in 1740. Dillenius describes the plant for the first time in his Hort. Eltham. 1732.

There is a strong probability that many other plants of North-China cultivated in European gardens and especially in Paris since the middle of the last century, were first raised from seeds sent by Incarville, although in botanical works his name does not appear in connection with the introduction of these plants. I may mention the following:

10. **Koelreuteria paniculata.** Laxm. a tree hitherto observed in a wild state only in the neighborhood of Peking. Laxmann, a Russian botanist, described it first in 1772. Nov. Com. Acad. Petrop. XVI. He states that this shrub, the native

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* I have not seen the original but quote from Grosier. l. c. III. 129.

country of which then was unknown, had been cultivated for 20 years in the hot-houses of the bot-garden of St. Petersb. It had first flowered in 1772. Lam. l.c. VI. 667 (1804) notices the K. paniculata as cultivated in Paris, but says nothing about its introduction. In England it was introduced in 1763. I am not aware what plant is intended by *Sapindus Koelreuteria*. Blanco. Fl. Philippin. 289.

11. **Zizyphus chinensis.** Lam. l. c. III. 318 states, that this tree is cultivated in the Royal Garden, Paris, and that it is said to be a native of China. Z. chinensis, the same as *Z. vulgaris*. Lam is very common at Peking.

12. **Caragana Chamlagu.** Lam. First described as *Robinia Chamlagu* by l' Héritier, Stirpes novae, 1784. p. 161. Ex traditione in horto Parisiensi accepta gignitur in China eamque dicunt *Chamlagu* ubi nomen vulgare Sinarum. I am not prepared to explain this name. C. Chamlagu is a common plant in the Peking mountains. It has also been gathered at Ningpo and Shanghai (Fortune, Forbes.)

13. **Gleditschia sinensis.** Lam. l. c. II. 466 (1786) states: cultivated in the Royal garden, Paris; it is said to have been raised from seeds received from China. The tree is common in N. China.

14. **Vitex incisa.** Lam. l. c. II. 612 (1786.) said to be a native of China, cultivated in the Royal garden, Paris. Miller (Fig. Gard. Dict. tab. 274.) states that seeds of this plant had been sent by missionaries from China to Paris. This shrub is very common at Peking and has been observed only in N. China, as far as I can conclude from the quotations in D. C. XI. 684. See above Linn. Chin. pl. 185.

15. **Lycium chinense.** L. Miller in his Gard. Dict (1768) No. 6 states with respect to L. *halimifolium* (L. chinense) that Bernh. Jussieu, who had received the seeds of this plant from the missionaries in China, transmitted them to Miller. Lam. l. c. II. 509 says that L. chinense is cultivated since a long time in the Royal Garden.

It is generally believed that **Sophora japonica.** L. has been first introduced into our gardens by James Gordon in 1753 (See Acton Hort. Kew. III. 2). But in a letter which I lately received from Mr. J. Decaisne he kindly informs me that Sophora japonica was introduced into the Jardin des Plantes by d'Incarville.

During my last stay in St. Petersburg, in 1878, I fell in with a curious memoir by Incarville, an *Alphabetic Catalogue of Peking Plants* and other objects of natural history, published in the Memoirs of the Soc. of Naturalists of Moscow, in 1812. (In French.) In an introductory note it is stated, that the original M. S. of this paper exists in the Archives of the Foreign Office at Moscow and had been communicated to the Society by Mr. Molinofsky, councillor of state. It seems that this catalogue had been drawn up by Incarville at the request of Bernh. Jussieu, his instructor. The Chinese characters accompanying the native names of plants, given in the M. S. have been omitted in the printing. Dr. Fischer, inspector of the botanical garden at Gorenki (subsequently Director of the Bot. Garden St. Petersburg) has supplied some scientific botanical names, for Incarville, besides the Chinese names, gives only old French popular appellations of plants. Even at the time when Incarville's paper was published the Flora of Peking had not yet been investigated by men of science and I venture to believe, that in the herbariums of the Botan. Garden and of the Academy in St. Petersburg, which now are so abundantly provided with plants from North-China, there was then hardly a specimen procured from Peking. Thus Fischer, in commenting on Incarville's accounts merely identifies the old French names of plants with the scientific Latin genus names. Incarville notices about 260 Peking plants or drugs, adds generally the Chinese names and occasionally some particulars regarding the economical uses of these plants. As I am tolerably well acquainted with the Flora of North-China and as I know also the popular names applied by the Chinese to the cultivated and some wild growing plants, I find no difficulty in ascertaining the plants mentioned by Incarville. But it would draw out my paper to an unconscionable length, were I to reproduce Incarville's enumeration and to comment on it.

From some allusions in Incarville's memoir it can be inferred that he used to keep up a correspondence with some of the learned academicians in St. Petersburg. He refers to a letter *Krasheninikov* had written to him about some seeds received from Peking. His collections destined for Jussieu, Inc. used to intrust to the care of the Russian caravans from Kiakhta (resp. Moscow) which every three years visited Peking. Jussieu seems to have forwarded European plants to Inc. by the same way, for in one instance the latter speaks of some bulbs and seeds sent by Jussieu in 1748, and of the delay in their transmission from Kiakhta by the Russian caravan.

In Koch's Dendrology, II. 307. I find a statement, that Adr. Jussieu after his death left a M. S. by Incarville, relating his voyage to China, and a collection of 4010 Chinese drawings representing plants and animals, which then became the property of the Muséum d'histoire naturelle. Anxious to see these documents I addressed myself personally to Mr. Decaisne, the eminent French botanist and director of that Museum. As they were found not to exist there M. Decaisne was kind enough to inquire about them at some other libruries in Paris, where he supposed they might have been deposited. But all inquiries proved unsuccessful. Koch has probably been mistaken, not, I believe, with respect to the real existence of such manuscripts and drawings, but evidently as to their fate after Jussieu's death.

I go on now to illustrate the labours in the way of botanical researches of another Jesuit missionary of Peking, who followed Incarville's footsteps.

PIERRE MARTIAL CIBOT was born in 1727 in Limoges, in France, He came to China in 1759 (thus two years after Incarville's death.) and died in Peking in 1784. He was a prolific author and had a predilection for Botany. There are a considerable number of interesting observations from his pen, relating to Peking plants and their economic uses. All his papers have been printed in the *Mémoires concernant les Chinois* etc., this vast repertory of the scientific labours of the Jesuit Missionaries at Peking in the second half of the 18th cent., issued in 16 vol. from 1776 to 1814. Cibot's articles are found in vol. II. (1777), III (1778), IV (1779), V (1780), VIII (1782), XI (1786). We are of course not to seek for scientific botanical names in Cibot's accounts. He confines himself to good popular descriptions and adds generally the names. The following is the list of the plants spoken of in Cibot's papers, with the modern botanical names and the Chinese characters added.

1. On the *Chinese Cabbage* called *Pe tsai* and its culture. l. c. IV. 503.

Brassica chinensis. L. sin : 白 菜 *pai ts'ai.*

2. The *Lien hoa* treated of in vol. III. 437, and XI. 218, is *Nelumbium speciosum*. Willd. sin : 蓮 花 *lien hua*

3. A good description of the water plant *Lien kien* or *Ki teou* is found in vol. III 451.

This is *Euryale ferox*. Salisb. sin : 蓮 芡 *lien kien* or 雞 頭 *ki t'ou* (fowl's head.)

4. The *Lin kio* or Water Chestnut. III. 449, is *Trapa bispinosa*. Roxbg. sin : 菱 角 *ling kio.*

5. The true Water Chestnut, *Pitsi* III. 451, is *Eleocharis tuberosa*. Schultes. Sin : 葧臍 *pi t'si*.

6. The *hong hoa* used as a red dye, V. 498, is *Carthamus tinctorius*. L. sin : 紅花 *hung hua*.

7. The *siao lan* from which in Peking a blue dye is obtained, a " Persicaire," as Cibot correctly states, V. 499, is *Polygonum tinctorium*. Lour. sin : 小藍 *siao lan*.

8. Various kinds of *Artemisia* used by the Chinese for preparing their *moxa* and also a sort of tinder

Artemisia vulgaris L. (*A. igniaria*. Maxim.) and *Tanacetum chinense*. A. Gray.

9. On the cultivation of *Cotton* in China. II. 603.

10. *Tobacco* in *China*. VIII. 267.

11. The *Moutan* flower, III. 432, is *Paeonia Moutan* Sims. sin : 牡丹 *mu tan*.

12. The *Kui hoa*, Matricaire de Chine, III 455, is the celebrated *Chrysanthemum indicum* L. and *Chr. sinense*. Sab. sin : 菊花 *'Kü hua*.

13. The *Mu kin*, XI. 500, is *Hibiscus syriacus*. L. sin: 木槿 *mu kin*.

14. The *Pe ge hong*, III. 480, is *Lagerstroemia indica*. L. sin: 百日紅 *po ji hung*.

15. The *Yu lan*, III. 441, is *Magnolia Yulan*. Desf. sin: 玉蘭 *yü lan*.

16. Under the name of *Ye hiang hoa* Cibot gives a good description, III. 478, of *Pergulatoria odoratissima*. Smith. Sin : 夜香花 *ye hiang hua*.

17. The *Mo li hoa*, III. 446, is *Jasminum Sambac*. L. sin : 茉莉花 *mo li hua*.

18. The *Tsieou haï tang*, III. 443, is *Begonia discolor*. R. Br. sin : 秋海棠 *ts'iu hai t'ang*.

19. On the *Peaches* of Peking. XI. 280.

20. On the *Apricots* of Peking, cultivated and wild. V. 505.

21. On Chinese *Chestnuts*. III. 484. Cibot states, probably on the authority of ancient Chinese authors, that the Chinese graft the Chestnut tree upon the Walnut tree.

22. Cibot asserts further, that the Chinese graft the Quince tree upon the Orange tree. III. 495.

23. On Chinese *Jujubes*. III. 482.

24. 25. The *Tcheou tchune* or *Frêne puant*, and the *Hiang tchune* or *Frêne odorant*. II. 598. Cibot gives good descriptions of both trees. *Ailantus glandulosa*. sin : 臭椿 *ch'ou ch'un*.—*Cedrela sinensis*. Adr. Juss. sin : 香椿 *hiang ch'un*.

26. The tree *tsao kia*, XI. 493, is *Gleditschia sinensis*. Lam. Sin : 皂莢 *ts'ao kia.*

27. The tree *chou keou*, resembling the Mulberry tree and the fibrous bark of which is used for making paper, XI. 295, is *Broussonetia papyrifera*. Vent. sin : 楮穀 *ch'u ku:*

28. On Chinese *Oaks*. III. 484.

29. Cibot translates from Emperor Kanghi's memoirs an account of a barkless tree of Mongolia, called *Tcha ke*, furnishing an excellent fuel. IV. 460.—This is the *Haloxylon ammodendron* C. A. Mey, the *dshak modo* of the Mongols.

30. The tree *Lo ye song*, a Fir tree with deciduous leaves, in South-Mongolia, IV. 454, is *Larix dahurica*. Fisch. sin : 落葉松.

31. An interesting memoir on *Chinese Bamboos* is found II. 623.

32. The *mou chou kouo tse*, a tree on which peculiar Galls are produced, XI. 294, is *Celtis sinensis*. Pers. sin: 木樹果子. *mu shu kuo tsz'*.

33. The *Lin tchi*, *Agaric ramifié*, described in vol. IV. p. 500, with an engraving, is a Chinese Agaric, termed 靈芝 *ling chi* in Peking, not yet examined by botanists.

34. The *Mo kou sin*. IV. 500, accompanied with an engraving. This is the *Clathrus mokusin* Spreng. *Phallus mokusin*. L. A more detailed article on this Fungus, has been published by Cibot in the Mémoires de l'Académie de St. Pétersb. IX (1774) The Chin. characters are 蘑菇蕈 *mo ku sin.*

35. Finally I ought not to omit to mention a treatise written by Cibot on *Chinese Hot-houses*, in which he furnishes interesting details with respect to the primitive but practical mode of Peking gardeners to protect Southern plants in winter, and how they proceed to cause plants to put forth blossoms in winter. Vol. III. 423.

For the sake of completeness I may mention moreover in connection with papers on botanical matters two Jesuit missionaries of Peking, contemporaries of Cibot. One of them **L. COLLAS,** +1781, wrote an article on *Chinese Bamboos*, and another on the plants, flowers and trees of China, which could be cultivated in France. Mém. conc. Chin. XI. 553, 183.

L. de Poirot, +1802, has written a paper on Chinese *Worm wood* (Artemisia). ibid. IX. 244.

Before quitting the subject dealt with in this chapter it may not be out of place to call the attention of the reader to a slight account of Northern Chinese fruits and vegetables found in **PALLAS'** notable work **REISEN DURCH VERSCH. PROVINZEN DES RUSSISCHEN REICHES**, 1768–1773. In the 3d. volume Pallas details some natural products sold in the streets of the Chinese market town *Maimaicheng*, opposite Kiakhta, which place he visited in 1772. Most of these fruits and vegetables, brought for the greater part from Peking, were completely unknown to him, but he describes them and adds the Chinese or Mongol names. As it may be presumed, that hardly any botanist, not acquainted with the native names of North-China and Mongol names of plants, would be able to ascertain what fruits are enumerated in Pallas' account, I venture to make some brief commentary on it.

Small green Peas, called *lo dou*, which Pallas correctly identifies with *Phaseolus radiatus*. L. See above Linn. Chin. pl. 74.

Arbuses, *Pears*, *Apples*, called *pinsa* and resembling green Rennet apples.

Watermelons (Arbus in Russian) are cultivated in Transbaicalia, but no edible pears or apples are grown in Southern Siberia. 蘋子 *p'in tsz'* in Peking is a small dark-red Apple.

Oblong *Quinces*, called *mugha*.

Cydonia sinensis. Thouin. Sin: 木瓜 *mu kua*. The fruits of this are brought to Peking from the province of Shantung. They are oblong and often of enormous size.

Lemons, sweet and acid *Oranges*, *Walnuts*, *Chestnuts*, called *lidsa*.

Castanea vesca 栗子 *li tsz'*.

Small red *Medlars*, Mespilus fructu obtuse pentagono, ruberrimo. These are said to grow wild in North-China. The Chinese boil them with sugar and thus make a kind of Jam.

An excellent Jam is prepared in Peking from the fruit of *Crataegus pinnatifida*. Bge.

The fruit *Alema* is the fruit of the tree *Akashu*, an Apple tree of Southern-China.

Alema is the Mongol name for Apple. It seems that the other name is a corruption of 沙果樹 *sha kuo shu*, Apple tree. *Sha kuo* at Peking is a small red-cheeked Apple.

Pallas saw also a most curious kind of *Citron*, splitting into 12 fingerlike divisions. It is devoid of pulp and seeds, but is very fragrant. The Chinese called it *Fui shu*.

Citrus Chirocarpa. Lour. Fl. coch. 568. Sin: 佛手 *fo shou*.

Small fruit of a kind of *Elaeagnus* with a peculiar stone. The Bukhars call it *dshigda*, the Mongols *sagda*, the Chinese *sasusa*.

The fruit Pallas saw was probably that of *Elaeagnus hortensis* M. B. var. *songarica* or the var. *orientalis*, (D. C. XIV. 609.) The Kirghizes call the Elaeagnus fruit *dshigde*, the Chinese 沙棗 *sha tsao*. (Sand Jujube, name applied in Peking to *E. latifolia*. L.)

Smoke dried red *Plums*, *shuptaga*, with roundish stones.

Shuptaga is the Mongol name for Jujubes. *Zizyphus chinensis*. Lam. has small fruits with roundish stones. The Chinese use to dry them.

Black sweetish fruit with many flat seeds, called *hodsoi*.

Probably *Diospyros Lotus*. L. Sin: 黑棗 *hei tsao*.)

Pallas states that the same fruit is brought to Kiakhta from Persia, and called *sorokum*.

Pallas describes also the fruit *lun yen* (*Nephelium Longan*).

He saw further some leguminous fruit, each containing two seeds, resembling in taste those of the tree Arabis curassavica (?)

Probably *Arachis hypogaea*. L.

White nuts with a smooth shell like the stone of the Apricot and of a bitter taste. They call them *lanzin* or *boigo*.

Salisburia adiantifolia. Smith. 白果 *pai kuo* in Peking.

Long dried flowers, called *tchetcheng*, brought from the South. The Chinese boil and eat them.

Hemerocallis fulva. L. and other species. Sin: 金鍼花 *kin cheng hua*. The flowers are a favorite vegetable of the Chinese. In Mongol *shira tsitsik*.

Long articulated spongious roots of a water plant. This was I think the root of *Nelumbium speciosum* Willd. from which the Chinese prepare a kind of Arrow root.

V. SONNERAT.

About a quarter of a century after Osbeck had herborized in the neighborhood of Canton, China was visited by a French naturalist, who gathered some plants at the same place it seems. **P. SONNERAT** was born in 1745 and spent a great part of his life, from 1768-1803, in travelling to different distant countries of the old and the new world. In 1768 he went to Isle de France, visited with *Commerson* Madagascar and Bourbon. From 1774 to 1781 he travelled to China and India, and settled finally at Pondicherry. In 1803 he returned to France with an immense collection. He died in 1814. Lamarck in his Enc. Botan. has described a great number of Sonnerat's specimens.

There is a work entitled: *Voyage aux Indes Orientales et à la Chine* 1774-1781 par *M. Sonnerat*, Commissaire de la marine, naturaliste du Roy. 1782. 2 vol.

All that I can gather with respect to Sonnerat's voyage to China is on the title of this book. The text contains no allusion to his journey but consists of several articles on the countries he visited and the natural objects he collected there. It may be assumed however, that Canton was the place he visited in China. In the 2d volume p. 222–248 we find descriptions of plants with good engravings. Only 3 Chinese plants are there represented, viz:

Litchi chinensis.p. 230. tab. 129. *Nephelium Litchi*. Camb.

Cookia punctata. p. 231. tab. 130. *Clausena Wampi*. Oliv. Fl. hgk. 50.

Marsana buxifolia, Buis de Chine. p. 245. tab. 139. *Murraya exotica*. L. Fl. hgk. 50.

Besides this Lamarck noticed some plants gathered by Sonnerat in China. I name those which I have happened to find mentioned.

Uvaria odorata. Lam. I. 595. *Unôna odorata* Dunal. *Alanguilan* de la Chine. Sonnerat.
Melastoma repens. Lam. IV. 54. Flor. hgk. 113.
Ixora chinensis. Lam. III. 344.
Capsicum sinense. Lam. V. 327.
Bignonia chinensis. Lam. I. 423. *Tecoma grandiflora* Del.
Phyllanthus lucens. Lam. (Poir.) V. 296. *Andrachne fruticosa*. L. Fl. hgk. 313.
Phyllanthus villosus. Lam. (Poir.) V. 297.
Adiantum flabellatum. Lam. I. 42. Flor. hongk. 447.
Pteris crenata. Lam. (Poir.) V. 715. Fl. hgk. 448.

VI. LOUREIRO.

We come now to the most conspicuous among the Jesuit missionaries, who have devoted themselves to the investigation of Chinese botany. I shall attempt presently to give an account of **LOUREIRO'S FLORA COCHINCHINENSIS**, a valuable monument of conscientious labour and considerable research. Although it deals properly, as the title intimates, with the Flora of Cochinchina, there are also described in it a considerable number of Chinese plants.

Let me introduce the subject with a short biographical notice derived principally from the preface to the book, written by the author himself. I have also consulted *Colmeiro's* History of Botany in Spain and Portugal 1858. (in Spanish.)

Ioannis de Loureiro was a Portuguese. According to Colmeiro he was born in 1715 and proceeded in 1735 as a missionary to Cochinchina. But from Loureiro's own account we infer that he arrived in Cochinchina about 1743, for he says that when in 1779 he established himself in Canton, he had spent 36 years in Cochinchina. As he states, p. 818, that in 1742 he was in Cambodja, we can therefore infer that he first lived in that country. It seems, that after his arrival in Cochinchina he had soon gained influence, for we find him holding an office at the Court of the King. (Rebus mathematicis ac physicis in Aula praefectus). Some knowledge of medical practice which he had previously acquired rendered him very popular among the people. He tells us that, European medicines not being within his reach, he was obliged to depend entirely on native drugs, and by investigating them he was necessarily induced to study the flora of the country and to make botanical collections This was the origin of his herbarium. His collection of plants of Cochinchina (nearly 1000 species) seems to be confined for the greater part to a small area of the littoral region. He says, that his herbarium is far from being complete and may represent only about a quarter of the flora of Cochinchina. It had been impossible for him to procure plants from the distant forests. Only a few specimens had been obtained with great pains and not without danger from the (neighboring) forest-covered mountains. As at the time of Loureiro the capital of Cochinchina, where he lived, was at *Hué* (near the sea coast, about 17° N.L.) it may be assumed, that the largest part of his Cochinchinese specimens were gathered in the neighborhood of that place. He generally does not specify the stations of the plants he collected in Cochinchina but confines himself to the statement that they are natives of that country. It is only in a few cases, which I shall notice here, that he refers to the stations.

Huae, the metropolis of Cochinchina, is only once mentioned p. 129.

The port of *Eo* near Huae, ibidem.

The rivulet *Hon mo*, not far from Huae, p. 32.

The mountain of *Ho chen* opposite Huae, p. 201.

The mountain of *Con mit* situated at a distance of 6 miles from Huae, p. 753.

The port of *Turan*, called *Han* by the natives, south of Huae, p. 208.

Province of *Doung nai* in the Southern part of Cochinchina, 10°. N.L. p. 109.

Province of *Binh khang* in the southern part of Cochinchina, 14°. N.L. belonging in former times to Champava. p. 154. 283.

Province of *Quang binh* in North-Cochinchina. p. 404.

Via (province?) *Nha ho* in North-Cochinchina. p. 544.
The country of the *Moji* (tribe) in the west, p. 679.
Mountain *Nguon nhung* (Cochinchina) p. 646.
Sandhills of *Son koung* (Cochinchina) p. 248. 547.
River *Lavus* flowing between Cochinchina and Laos. p. 327.

In 1779 Loureiro proceeded to *Canton*, where he continued his botanical researches during three years. As at that time foreigners living in Canton were not allowed to walk beyond the limits of the factories, L. hired a Chinese peasant, acquainted to a certain degree with the medicinal plants of the country, to collect such for him. This Chinaman used to communicate also the native names of the plants he brought in the vernacular Cantonese dialect. But as the information thus derived seemed not always to be reliable, L. compared it with a Chinese book on Botany, in which he was able to find the correct names of the plants used for medical and economic purposes, and in his Flora cochinchinensis tried to spell these names according to the Mandarin dialect.

Loureiro seems to have embarked with his botanical treasures in 1782. On his way home he visited the island of Mozambique, where he made a stay of three months, enriching his herbarium with many rare specimens. He states further, that during his peregrinations he had improved the opportunity by herborizing in Cambodja, Champava, Bengal, Malabar, Sumatra. All the plants gathered in those regions he describes also in the Fl. cochin.

After having reached his native country L. was taken up during several years, in Lisbon, with the preparation of his work for publication. In 1788 the M.S. of the Flora coch, written in Latin, and arranged according to the Linnaean system, was completed, but the book was not brought out before 1789. Three years later *Willdenow* edited it anew, adding some notes, which however throw little light on dubious questions and as he had no opportunity of referring to Loureiro's herbarium his identifications are not always happy.[*] In the following notes, quoting Loureiro, I always refer to Willd. edition.

According to the Catal. Patr. Jes. Sin. Loureiro died in 1794. But Colmeiro makes him die two years later.

There is no allusion in L.'s preface to his having belonged to the Soc. of the Jesuits. On the title page he styles himself only: olim in Cochinchina Catholicae Fidei praeco. But in the Catalogus he is stated to have entered the Jesuit mission in China in 1779.

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[*] On p. 468 he identifies Loureiro's *Campsis adrepens* with *Incarvillea sinensis.* But the former is *Bignonia grandiflora* and bears no resemblance to Incarvillea.

Loureiro occupies without doubt one of the most prominent places among the botanical collectors of the last century. We owe to him one of the most important contributions illustrating the Flora of the eastern part of the transgangetic peninsula and of South-China, and his book is still a standard work to which botanists dealing with Chinese plants have frequently to refer. Although a self-taught and not professional botanist, L. had acquired good botanical knowledge, at least he was up to the level of his time. Modern botanists often find fault with his description of plants. But may we not ask whether it would be possible to identify even a quarter of Linnaeus' plants only from the short characters he gives, had his herbarium been lost, as is the case with the greater part of Loureiro's collection. Thus Loureiro is not to be blamed for want of scientific accuracy in our modern sense or for mistakes occasionally met with in his work. Generally it can be said, that he was a conscientious observer and his veracity is always beyond question.

One great merit of the Flora cochin. consists in descriptions made by a botanist upon living or fresh plants. It is a matter of regret, that the greater part of the existing Floras of various exotic regions have necessarily been based upon the description of dried specimens and often unsatisfactory material. The botanist in Europe, who works up these collections then knows nothing more about the plants he has to describe than he observes on the dry specimens. Thus it is quite exceptional to find in De Candolle's Prodr. the colour of the blossoms noticed, although this is a very important characteristic.

The value of Loureiro's elaborate work lies also in the illustrations he gives with respect to the economical use, medical virtues etc. of the plants. The Chinese names he adds are for the greater part correct.* He gives them now in the Mandarin, now in the popular Canton dialect and makes sometimes mistakes in transliterating the characters.

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* I take the opportunity of noticing here a very valuable list of Canton plants with the Chinese names added, and accompanied with interesting annotations, published two years ago in the Hongkong China Mail, July 10 to Spt. 11. 1878. The anonymous author of this paper, which gives the Chinese, (Cantonese) names of nearly 800 plants, states, that in compiling this list he did not refer to any printed authority for the application of any one Cantonese name to any single botanical name. But every plant had been shown to at least three natives to ascertain the Chinese names and then referred to a competent botanical authority, to supply the scientific name. This is indeed the only rational way to identify Chinese appellations of plants. I have been informed, that Mr. *E. H*.

A considerable number of plants described by Loureiro, especially of Southern Chinese ones have been gathered by later collectors, who investigated the Floras of Canton, Macao or Hongkong. Loureiro's name occurs frequently in *Hooker* and *Arnott*, Botany of Capt. *Beechey's* voyage—in *Meyen's* Observ. botan. in it. c. terram.—in *Bentham's Flora hongkongensis*. Dr. Hance has also rediscovered many Loureirian specimens. But a great part of Loureiro's plants, in particular those from Cochinchina are still known only from his description, although they are probably very common in that country. It may be also that many Loureirian species relegated by botanists among the species dubiae are known under other scientific names. From the diagnoses alone given by L., without examining the original specimens, it is impossible to identify them.

I may say finally a few words with respect to the fate of Loureiro's herbarium. From his preface we learn, that in 1774, when he was still in Cochinchina, he had sent by way of Canton to England and Sweden about 60 specimens of plants, accompanied with his own original descriptions, and that Berg in his Materia med. p. 5 and Linnaeus fil. Suppl. p. 331, have noticed these plants. In 1779, when he was already established in Canton he transmitted to London 230 species more, which seemed to him to be novelties. This collection is now in the British Museum. As we can conclude from some references found in Benth. and Hook. Gen. Plant. those plants have been badly preserved and their examination is of little use for deciding dubious questions. According to Colmeiro the bulk of Loureiro's herbarium was

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Parker of the British Cons. Serv. at Canton is the author of this paper, and I need hardly say, that the competent botanical author alluded to in it, is my respected friend Dr. *H. F. Hance*. I hope these gentlemen will pardon my having disclosed their names. The only faults I have to find with Mr. Parker's paper, are its publication in a Newspaper, where hardly any one interested in these questions would dream of looking for it, and the arrangement of the list in no intelligible order, scattered over 8 numbers of the China Mail with the interesting annotations generally not placed in the same number as the plants to which they refer. It would be worth reprinting in a form more accessible for reference.—M. Parker is right in supposing that a great part of the Chinese names of plants, given by Dr. Williams (Bridgman's Chrestomathy) have been derived from Loureiro.

kept by the Academy of Lisbon, but in 1808, when Napoleon I. had taken possession of Portugal a part of the herbarium was transferred to Paris, where it still exists in the Muséum d'hist. nat. as Mr. Decaisne has kindly informed me. My late friend Mr. D. Hanbury gives the following account with respect to Loureiro's herbarium. (Science Papers 98) M. Pereira Da Costa of Lisbon had informed him, that the herbarium in question had never been at the Academy; it was supposed to have formerly belonged to the Museu da Ajuda; but upon the removal of that establishment to the Academy, no trace of it could be discovered.

A great number of new plants have been described by Loureiro. Among the new *Genera* he has proposed, the following 30 have been ascertained and retained in Bentham and Hooker's (or Endlicher's) Genera Plantarum.

Aerides.
Aglaja.
Argyreia.
Baccaurea.
Blastus.
Bragantia.
Centipeda.
Coleus.
Cyathula.
Derris.
Dichroa.
Enhydra.
Enkianthus.
Fibraurea.
Grona.
Helicia.
Homonoia.
Limacia.
Mallotus.
Mazus.
Osmanthus.
Phajus.
Rhynchosia.
Salomonia.
Sarcodium.
Stephania.
Streblus.
Striga.
Trema.
Triphasia.

The total number of plants described in Loureiro's Flora cochin. is 1257 of which 36 must be deducted as having been gathered in India, Sumatra, Mozambique. Of the remaining 1221 he enumerates 976 for Cochinchina and of these, 294 he had also gathered in China. As found only in China he mentions 245 spec. Thus the total number of Chinese plants observed by Lour. is 539. Of 341 of these China in general is given as habitat. With respect to the rest he indicates the habitat precisely, viz.

Canton and Macao 193 plants.

Southern China in general 2.

Province of Yunnan 1. *Amomum medium*. p. 5.

Mountains of West-China 1. *Nardus indica*. p. 57.

North-China 15 species. These plants or accounts of them had probably been sent to Loureiro from Peking by the Jesuits there (Incarville ? Cibot ?)

Dorstenia chinensis. p. 114.
Rhamnus soporifer. p. 196.
Rheum palmatum. p. 314.
Pyrus Malus. p. 393.
Pyrus Cydonia. p. 394.
Potentilla fruticosa. p. 399.
Sinapis pekinensis. p. 485.
Glycyrrhiza echinata. p. 543.
Robinia flava. p. 556.
Cichorium Endivia. p. 583.
Artemisia annua (Peking.) p. 599.
Tussilago Farfara. p. 614.
Tussilago Anandria. p. 614.
Paeonia officinalis. p. 419.
Juglans regia. p. 702.

CHINESE PLANTS DESCRIBED IN LOUREIRO'S FLORA COCHINCHINENSIS.

In what follows I shall give a list of all the plants Loureiro mentions for China and include also those species which he had gathered only in Cochinchina but which subsequently have been observed also in China.

I arrange the list according to the Natural System adopted by Bentham and Hooker, giving for each plant at first the Loureirian name, the habitat and the Chinese name as noticed by Loureiro, and quoting the page in the Flora cochin. After this I shall add, if necessary, my observations. Many of Loureiro's plants have by the progress of science received other names and mistakes made by that author have been occasionally corrected. In my researches with respect to Loureirian plants I depend upon *De Candolle's Prodromus*, *Kunth's Enumeratio plantarum*, *Bentham and Hooker's Genera Plantarum*, *Bentham's Flora hongkongensis*, the botanical papers published by *Maximowicz*, Dr. *Hance* and others. I shall also give the Chinese names of plants noticed by Loureiro, as far as I have been able to ascertain them.

With respect to the abbreviations used in the following notes I beg to refer to my list of Chinese plants known to Linnaeus. When quoting Osbeck I always refer to that list not to Osbeck's Voyage.

DICOTYLEDONS.

1. **Clematis minor.** Lour. Canton. Sin: *uei leng sien* (威靈仙). 422.

Cl. terniflora. D. C. Maxim. Dec. XX. *Cl. ternifolia.* Fl. hgk. 7. *Cl. chinensis.* Retz. (?) Osb. 1.

2. **Clematis sinensis.** Lour. China. Sin: *mu tum* (木通). 422.

Willdenow thinks, that it is the same as *Cl. chinensis*. Retz. Osb. 1.

3. *Clematis virginiana*. Lour. (non Linn.) Cochin-China. 422.

Clem. apiifolia. D. C.—Maxim. Dec. XX. Amoy, N. China (Fortune).

4. **Thalictrum sinense.** Lour. China. Sin: *poi mu* (貝母). 423.

D. C. I. 16. Planta dubia.

5. *Hecatonia palustris*. Lour. Sin: *chu lien*. *Canton*. 371.

D. C. I. 34. Ranunculus sceleratus. Linn.—Hce. add. Fl. hgk. 98.

6. *Hecatonia pilosa*. Lour. Canton. Sin: *Khao tsao*. 371.

D. C. I. 43. Ranunculus cantoniensis. Not observed after Lour.

7. *Paeonia officinalis*. L. China borealis. Culta per tot. imp. Sinense. Sin: *so yo* (芍藥). 419.

The above Chinese name is applied in China to P. albiflora. Pall.

8. *Calligonum asperum*. Lour. Cochin. 418.

D. C. I. 70. *Trachytella Calligonum.—Delima sarmentosa.* Linn. Fl. hgk. 7. G. Pl. I. 12.—Tetracera sarmentosa. Willd. Hce. Add. Fl. hgk. 99.

9. *Actaea aspera*. Lour. Canton. Sin: *tsia ip* (錫葉). 405.

D. C. I. 70. Trachytella Actaea.—G. Pl. I. 12. spec. valde dubia.—Bridgm. Chrest. 457 (3).

10. **Illicium anisatum.** L. Provinciae ad occasum Canton. Sin: *pa co huei hiam* (八角茴香). 432.

Comp. above Linn. Chin. pl. 2.

11. *Liriodendron Coco*. Lour. Macao, Canton, Cochin. culta. 424.

Hance Advers. in stirp. crit. 6. Magnolia pumila. Andr.—Fl. hgk. 8.

12. *Liriodendron liliifera*. Linn. Canton. Lour. 424.

D. C. I. 81. Magnolia inodora. Not observed after Lour. Comp. also Trim. Journ. bot. IV. 225. *Liriodendron* in China.

13. *Liriodendron Figo*. Macao, Canton, cult. 424.

Hance Advers. 6. Michelia (Magnolia Andr.) fuscata.

14. **Michelia Champaca.** Linn. Macao, Coch. cult. Lour. 425.

15. *Uvaria uncata*. Lour. Canton. Sin: *yin chao* (鷹爪). 426.

The above Chin. name is applied in Canton to Artabotrys odoratissima. R. Br. (Parker.)—Fl. hgk. 10.

16. *Desmos chinensis*. Lour. Canton. Sin: *cau tsit fung*. 431.

D. C. I. 91. Unona chinensis. Species non satis nota.

17. **Anona squamosa.** Linn. China, Coch. cult. Sin: *pu uon* (*zu*). Lour. 427.

As is known this is a native of tropical America. The name Lour. gives as a Chinese appellation is the Malay name of the fruit, being *buwa* *nona* (Cyclop. of India.)

18. **Fibraurea tinctoria.** Lour. Sin: *tien sien tan* (天仙藤?). China, Coch. 769.

G. Pl. I. 39. Planta imperfecte nota.

19. *Nymphaea Nelumbo*. Linn. Sin: *lien hoa* (蓮花). China, Coch. Lour. 416.

D. C. I. 113. Nelumbium speciosum. Willd.—Osb. 3—Fl. hgk. 15.

20. **Chelidonium majus.** Linn. China, Sin: *hoam lien* (黃連). Lour. 402.

Chel. majus is common in North-China. D. C. I. 123. means that Lour.'s plant is a new species: *Ch. sinense.*

21. *Lepidium petraeum*. Linn. China, Sin: *tim li* (葶藶). Lour. 479.

D. C. I. 236. Nasturtium.? chinense (Lour.'s plant). Not observed in China after Lour.

22. **Cardamine Chelidonia.** Linn. Canton. Lour. 484.

D. C. I. 152. European plant, not observed in China, after Lour.

23. **Ricotia cantoniensis.** Lour. Canton. 482.

D. C. I. 157. Dubia.

24. **Brassica oleracea.** Linn. China, Coch. cult. Lour. 481.

25. **Brassica chinensis.** Linn. Sin: *chai lan ts'ai* (芥蘭菜). Cult. China, Cochin. Lour. 482.

Osb. 5. The above Chin. name given by Lour. is found in the Kuang tung tung chi. (vegetables).

26. **Sinapis chinensis.** Linn. Sin: *kiai ts'ai* (芥菜). Cult. China, Coch. Lour. 485, means, that it is only a variety of *S. juncea.* L.

Linn. Chin. pl. 8. In Peking different varieties of *S. juncea.* L. go under the above Chinese name.

27. **Sinapis pekinensis.** Lour. Sin: *pe ts'ai.* (白菜). Peking. cult. 485.

In Peking this Chin. name is applied to *Brassica chinensis.*

28. **Sinapis brassicata.** Linn. Sin: *pe kiai.* (白芥). China, Coch. cult. Lour. 485.

Linn. Chin. pl. 10.—D. C. I. 219.

29. *Thlaspi bursa pastoris*. Linn. China. Lour. 480.

D. C. I. 177. Capsella bursa past. Moench.—Fl. hgk. 14. Frequent in N. China.

30. **Raphanus sativus.** Linn. Cult. China, Coch. Sin: *tsai fu ken* (菜菔根) or *la bao* (蘿蔔).—Lour. 481.

Flor. hgk. 17.—Cultivated throughout China.

31. *Cleome icosandra*. Linn. Cochin. Lour. 483.

D. C. I. 242. Polanisia viscosa.—Fl. hgk. 18.

32. **Capparis cantoniensis.** Lour. Canton. Sin: *hiang lac phung*. 404.

D. C. I. 253. Spec. dubia.

33. *Capparis falcata*. Lour. Canton. 405.

D. C. I. 243. **Crataeva falcata.** Not observed after Lour.

34. **Reseda chinensis.** Lour. Sin: *thin ki hoam*. Canton. 367.

Not observed after Lour.

35. *Viola primulaefolia*. Linn. Canton. Lour. 628.

D. C. I. 293. **Viola Patrinii var. chinensis.** (Lour.'s plant.) Fl. hongk. 20.

36. *Viola odorata*. Linn. Canton. Sin: *kiet tuong hoa*. Lour. 627.

Maxim. identifies Lour.'s plant with **V. serpens.** Wall. Fl. hgk. 20. *V. confusa*

37. *Phoberos chinensis*. Lour. China. Sin: *Co tsu*. 389.

Flora hongk. 19. **Scolopia chinensis.** Clos.

38. **Salomonia cantoniensis.** Lour. Sin: *siao lam teng*. Canton. 18.

D. C. I. 334. Specimen in hb. Mus. Paris. Fl. hgk. 44.

39. **Polygala sibirica.** Linn. Canton. Lour. 517.

Frequent in North-China.

40. **Polygala glomerata.** Lour. Canton. Sin: *tai kam* (大 金 Parker). 518.

D. C. I. 326. specim. in Mus. Paris.—Fl. hgk. 44.

41. **Dianthus caryophyllus.** Linn. China, colitur. Lour. 345.

Probably another species.

42. **Dianthus chinensis.** Linn. China, Coch. cult. Lour. 346.

Lin. Chin. pl. 14.

43. *Hedona sinensis*. Lour. Canton. Sin: *yu mi*. 351.

According to Willdenow this is **Lychnis grandiflora.** Jacq.—Bridgm. Chrest. 454 (66.) Lychnis coronata, Sin: 虞 美 人 *u mi yan.*

44. *Cerastium repens*. Linn. Canton, Cochin. Sin: *a kim tsao*. Lour. 349.

D. C. I. 419. **Cerastium arvense.** L. ?—The latter plant occurs in North-China.

45. **Portulacca oleracea.** Linn. Sin: *ma chi hien* (馬 齒 莧) China, Coch. Lour. 359.

Fl. hgk. 327.

46. **Tamarix chinensis.** Lour. Provincia Canton. Sin: *cuon nham lau* (觀 音 柳). 228.

Hook. et Arn. voy. Beech. 186. South-China. Frequent in N. China.

47. *Hypericum aureum.* Lour. Canton, spont. et cult. Sin: *guei thoung hoa* 578. Lour. says: suspicio hoc esse *H. monogynum* Thbg.

Hook. et Arn. voy. Beech. 172. **H. chinense.** Mill. S. China.—Linn. Chin. pl. 15.—Sin: 金絲海棠花 *kin sse hai t'ang hua* (Parker.)

48. **Hypericum olympicum.** Linn? Canton, Cochin. Sin: *hoang xoc.* Lour. 577.

49. *Hypericum petiolatum* Linn. Sin: *hoang nieu thau* (黃牛頭). Canton. Lour. 577.

Linn.'s plant is a dubious species. D. C. I. 543. **Vismia? petiolata.** Brasilia.

50. *Cambogia Gutta.* Linn. Sin: *hoam lo* (黃櫨?). Cochin. Siam, Cambodja. Lour. 406.

D. C. I. 561. **Garcinia Cambodja.** Desr.—According to Hanbury (Science pap. 329.) the Gamboge of Siam and Singapore is yielded by *Garcinia Morella.*

51. **Thea cantoniensis.** Lour. Sin: *Ho nam cha yong* (河南茶). Canton. 414.

D. C. I. 530. **Thea chinensis,** var. **Bohea.** L. In the Chinese name given by Lour. *Ho nam* means probably the island of this name on which a suburb of Canton is situated.

52. **Thea cochinchinensis.** Lour. Cochin. boreal. 413.

53. **Thea oleosa.** Lour. Sin: *yeu cha* (油茶). Canton 414.

Not observed after Lour.—Not to be confounded with *Thea oleifera.* Abel, which according to Hance is *Camellia Sasanqua.* Thb.

54. **Camellia drupifera.** Lour. Cochin. Oleum ex nucleis expressum aestimatur ab indigenis. 499.

D. C. I. 529. Dubia.

55. **Malva verticillata.** Linn. Canton, Coch. rara. Sin: *tung quei tsu* (冬葵子). 514.

Comp. Linn. Chin. pl. 20.

56. **Sida cordifolia.** Linn. Cochin. Lour. 503.

Fl. hgk. 33.

57. *Sida scoparia.* Lour. Cochin. 504.

D. C. I. 460. **Sida acuta.** Burm. Fl. hgk. 32.

58. *Urena polyflora.* Lour. Canton. Sin: *xie thau fo.* 508.

D. C. I. 441. **Malachra Urena.** Dubia.

59. **Urena procumbens.** Linn. China, Coch. Lour. 507.

Osb. 24.

60. **Urena sinuata.** Linn. Cochin. Lour. 507.

Flor. hgk. 34.

61. **Urena lobata.** Linn. China, Coch. Sin: *sie thau fo* (see 58). Lour. 507.

Osb. 23.—Fl. hgk. 34.

62. **Hibiscus syriacus.** Linn. Cochin. In China non visus. Lour. 511.

Journ. Bot. 1879. 9. Hance. Canton prov.—Frequently cultivated in China.

63. **Hibiscus mutabilis.** Linn. China. Coch. cult. Sin: *fu yung* (芙 蓉). Lour. 511.

Osb. 25.—Journ. Bot. 1879. 9. Hance. Canton prov.

64. **Hibiscus Rosa sinensis.** Linn. China. Cochin. cult. spont. Lour. 510.

D. C. I. 448, gives only India as native country. I know that it is much cultivated in South-China.

65. **Hibiscus esculentus.** Linn. China, Cochin. cult. Sin: *hoang souc quei* (黃 蜀 葵). Lour. 512.

D. C. I. 450. India orient. cult.

66. **Hibiscus tiliaceus.** Linn. China, Cochin. Lour. 509.

Fl. hgk. 35.

67. **Gossypium herbaceum.** Linn. Cult. China, Coch. Sin: *mien fu* (棉 花). Lour. 505.

Osb. 27.

68. *Bombax pentandrum.* Linn. China, Cochin. Sin: *mo mien hoa* (木 棉 花), *uen xu.* Lour. 504.

D. C. I. 479. **Eriodendron anfractuosum.** India orientalis.—The tree is well known to the Chinese.

69. *Helicteres undulata.* Lour. Cochin. 649.

Spreng. Syst. III. 81. **Sterculia lanceolata.** Cav.—Fl. hgk. 36.

70. **Helicteres angustifolia.** Lour. Canton. Sin: *san chi ma* (山 芝 麻). 647.

Osb. 29.—Fl. hgk. 37.—Parker, the same Chin. name as Lour.

71. **Pentapetes phoenicea.** Linn. Cult. China, Cochin. Lour. 497.

D. C. I. 498. India orient.—Cultivated Canton (Williams).

72. *Fallopia nervosa.* Lour. Canton. Sin: *kai pu ip.* (薜 實 葉 Williams). 410.

Hance, Journ. Bot. IX. 239. **Grewia microcos.** Linn. known to Linn. from Ceylon.—Fl. hgk. 42.

73. *Arsis rugosa.* Lour. Cochin. 409.

G. Pl. I. 233. **Grewia rugosa.**—Hook. et Arn. bot. Beech. 170

74. **Corchorus capsularis.** Linn. Canton, agrest. cult. Sin: *san lim ma.* 408.

Fl. hgk. 40.

75. **Oxalis corniculata.** Linn. China, Cochin. Sin: *tso tsian tsao* (酢漿草). Lour. 350.

Osb. 32.—Fl. hgk. 56.

76. *Oxalis sensitiva.* Linn. Canton, Cochin. Sin: *chan tsu.* Lour. 350.

D. C. I. 690. Biophytum sensitivum. Ind. orient.—Not observed in China after Lour.

77. **Averrhoa Carambola.** Linn. China austr. Cochin. Sin: *yam tao* (楊桃). Lour. 354.

Osb. 33.—Fl. hgk. 56.

78. **Impatiens Balsamina.** Linn. Cochin. agrest. cult. Lour. 626.

Osb. 34.—Much cultivated throughout China.

79. **Impatiens chinensis.** Linn. Canton, cult. spont. Sin: *kum thau kio.* Lour. 625.

Osb. 35.

80. **Impatiens mutila.** Lour. China, Cochin.cult. 627.

81. **Impatiens cochleata.** Lour.Canton. cult. Sin: *tsien chi kum.* 686.

82. **Tribulus terrestris.** Linn. China, Cochin. Sin: *cis li tsu* (蒺藜子). Lour. 331.

Very common in North-China. Has been gathered also in Formosa.

83. *Ruta chalepensis.* Linn. China, Cochin. cult. Sin: *sao tsao.* Lour. 330.

D. C. I. 710. R. bracteata. According to Parker, list of Canton plants, the Chinese call it 臭草 *ch'ou ts'ao.*

84. *Lepta triphylla.* Lour. Cochin. 104.

Flora hgk. 59. Evodia Lamarckiana. Bth.

85. *Fagara piperita.* Linn. Cochin. Lour. 101.

Fl. hgk. 58. Xanthoxylum nitidum. D. C. I. 727.

86. *Piper pinnatum.* Lour. China. Sin: *xu tsiao* (蜀椒). 38.

D. C. XVI. 1. 383. ignotum.—Judging from the Chin. name it seems to be a Xanthoxylum.

87. **Xanthoxylum clava Herculis.** Linn. China,Cochin. Sin: *so.* Lour. 810.

D. C. I. 727. American species.

88. *Jambolifera pedunculata.* Linn. Macao. Lour. 283.

Benth. et Hook. G. Pl. I. 302. Acronychia Cyminosma.—*Cyminosma pedunculata.* D. C. I. 722.—Fl. hgk. 59.—Loureiro's *Jamb. resinosa* 285 is the same.

89. *Triphasia aurantiola.* Lour. China, Cochin. cult. 189, 572.

G. Pl. I. 303. Species chinensis. Limonia trifoliata. Linn. Known to Linn. from India.

90. *Chalcas paniculata.* Linn. China, Cochin. Sin: *cao li yong* (九 里 香). Lour. 331.

D. C. I. 537. **Murraya paniculata.** Ind. orient.

91. *Chalcas japonensis.* Lour. China, Cochin. 332.

D. C. I 537. **Murraya exotica.** L. India. Flor. hgk. 50. According to Parker the Chin. name given by Lour. for Ch. paniculata, is applied to Murraya exotica.

92. *Quinaria lansium.* Lour. Canton, cult. Sin: *uan pi chu* (黄 皮 樹). 334.

D. C. I. 536. **Cookia punctata.** Retz.—G. Pl. I. 304. *Clausena Whampi* Oliv.—Fl. hgk. 50.

93. *Limonia monophylla.* Linn. China, Cochin. Sin: *sao peng lac*, lingua Cantonensi *xac may lac.* Lour. 333.

D. C. I. 535. *Atalantia monophylla.* India orient.—Loureiro's plant may be **Atalantia Hindsii.** Oliv. or **A. buxifolia.** Oliv.—Fl. hgk. 51. Osb. 40.

94. **Citrus aurantium.** Linn. China, Cochin. cult. Sin: *can xu* (柑 樹). Lour. 569.

Osb. 37. As far as I know the above Chin. name in Canton is rather applied to the Mandarin orange.

95. **Citrus nobilis.** Lour. Abundanter in Cochinchina, etiam in China, quamvis Cantone illam non viderim. Sin: *tsem can.* 569.

Kerr bot. reg. t. 211. *Mandarin* Orange. Introduced into Europe from China in 1805.

96. **Citrus fusca.** Lour. Cochin. rarius in China. Sin: *chi keu.* (枳 殼?). 571.

97. **Citrus margarita.** Lour. Canton. Sin: *chu tsu.* 570.

98. **Citrus madurensis.** Lour. China, Cochin. cult. Sin: *kim kuit* (金 橘). 570.

In Peking the above Chinese name is applied to Bunge's *Citrus microcarpa*, which is I think the same as **Citrus japonica.** Thbg. fructu globoso. Hooker bot. mag. 6128 (1874) refers also Loureiro's C. margarita to this species.—See also Osb. 39.

99. **Citrus Decumana.** Linn. China, Cochin. Sin: *yeu xu* (柚 樹). Una varietas *hiam yuen* (香 櫞). Lour. 571.

Osb. 41. Largely cultivated in South-China.

100. **Citrus medica.** Linn. China, Cochin. cult. Lour. 568.

Cultivated also in Peking.

101. **Citrus digitata** seu **Chirocarpus.** Varietas Citri medicae. Lour. 568.

This curious fruit with its lobes separating into fingerlike divisions is frequently seen in China. It is cultivated in Peking as well as the *Citrus medica Cedra*, of which it is a variety. Ten years ago I stated in my

paper: On the Study and Value of Chin. bot. Works, p. 12, that the Chinese fingered Citron is the Citrus Sarcodactylis or *Sarcodactylis helicterides* of Gaertner Fruct. III. 39. t. 185. But that was an error. The latter, which Gaertner had received from Guyana, is as Benth. et Hook. G. Pl. I. 305 correctly state, a variety of C. decumana.

102. *Citrus Limon*, varietas Citri medicae. Sin: *tsim pi xu* (青 皮 樹). Lour. 102.

Osb. 42. **Citrus medica**, var. acida.

103. *Gonus amarissimus*. Lour. China, Cochin. Sin: *a tam tsao*. 809.

D. C. II. 88. **Brucea sumatrana**. Roxb.—Fl. hgk. 60.

104. *Pimela nigra*. Lour. China, Cochin. Sin: *o lam* (烏 欖). 495.

Osb. 45.—D. C. II. 80. **Canarium Pimela**. Koen.

105. *Pimela alba*. Lour. China, Cochin. Sin: *pa lam* (白 欖). 495.

D. C. II. 80. **Canarium album**. Raeusch.—Osb. 44.—Dr. Hance, Chinese Olives. Journ. Bot. 1871.

106. **Melia Azedarach**. Linn. Cochin. Sin: *xun lien*. Lour. 329.

D. C. I. 621. Ceylon, Syria.—Parker, Canton, 森 楝 *shen lien*.

107. **Aglaja odorata**. Lour. Camunium sinense seu *Tsju lang*. Rumph. Amb. VII. 28. China, Cochin, 216.

According to Parker in Canton 米 仔 蘭 *mi tsz' lan*.

108. **Euonymus chinensis**. Lour. Canton. Sin: *kam kua* 194.

D. C. II. 4. Spec. dubia.

109. *Salacia cochinchinensis*. Lour. Cochin. 642.

D. C. I. 571. **S. chinensis**. L. China. Idem ac S. cochin. ex adnotat. in herb. Banksiano.—Linn. Chin. pl. 46.

110. *Aubletia ramosissima*. Lour. Canton. Sin: *an pat pouc*. 110.

D. C. II. 22. **Paliurus Aubletia**. Schult.—Lour. specim. in herb. mus. Paris.—Fl. hgk. 66.

111. *Rhamnus Jujuba*. Linn. China, Cochin. cult. Sin: *ta tsao* (大 棗). Lour. 195.

D. C. II. 21. **Zisyphus Jujuba**. Lam.—Journ. Bot. 1879. 10. Hance, Canton.

112. *Rhamnus Zisyphus*. Linn. Cochin. Canton. Sin. *hum tsao* (紅 棗). Lour. 196.

D. C. II. 19. **Zisyphus vulgaris**. Lam.—Maxim. Rhamneae, the same as *Z. chinensis*. Lam. Frequent in China. Journ. Bot. l. c. Hance. Canton.

113. *Rhamnus soporifer*. Lour. In provinciis boreal. Sinarum. Sin: *soan tsao* (酸 棗). 196.

In North-China the above Chinese name is applied to **Zizyphus vulgaris.** Lam.

114. *Rhamnus lineatus.* Linn. China, Cochin. Sin: *che lum.* Lour. 197.

Osb. 48.—Fl. hgk. 67. **Berchemia Loureiriana.** D. C. II. 23.

115. **Vitis vinifera.** Linn. China cult. rara Cochin. Sin: *pu tao* (葡萄). Lour. 192.

116. **Cissus umbellata.** Lour. Canton. Sin: *yong co loi.* 106.

Not observed after Lour.

117. **Cardiospermum Corindum.** Linn. Canton. Lour. 294.

D. C. I. 602. Brasilian plant.

118. *Sapindus abruptus.* Lour. Canton. Sin. *mu hoan xu* (無患樹). 293.

According to Parker this Chinese name in Canton is applied to **Sap. mukorossi.** Gaert. (Japan).

119. *Dimocarpus Lichi.* Lour. Colit. abund. China austr. Cochin. Sept. Sin: *Ly chi* (荔枝). 287.

Osb. 51.—Fl. hgk. 47. **Nephelium Litchi.** Camb.

120. *Dimocarpus Longan.* Lour. China, Cochin. cult. Sin: *lum yen* (龍眼). 288.

Osb. 51.—Fl. hgk. 47. **Nephelium Longan.**

121. *Rhus javanicum.* Linn. In sylvis cantoniens. Sin: *xiong tsat.* Lour. 228.

Osb. 53.—D. C. II. 67. **Rhus semialata.** L. var. **Osbeckii.**—Add. Fl. hgk. 101.

122. **Augia sinensis.** Lour. China, Cochin. Cambodia, Siam. Sin: *tsi xu* (漆樹). 411.

The Chinese Varnish tree.—G. Pl. I. 418. *Augia* est genus omnino ignotum; ex descr. multis notis cum *Rhoide* quadrat.

123. **Baryxylum rufum.** Lour. Montes Cochin. bor. Sin: *tie li mu* (鐵力木). 326.

G. Pl. I. 464. Baryxylum, genus dubium.

124. **Aloexylum Agallochum.** Lour. Montes Cochin. Sin: *chin hiam* (沉香). 327.

G. Pl. I. 464. Planta ignota. Comp. *Aloe wood* Semedo. 8.

125. *Trifolium Melilotus indica.* Linn. Canton. Sin: *sam pa lim.* Lour. 541.

D. C. II. 187, 189. Linn.'s plant *Melilotus sulcata.* Desf. and ex parte *M. parviflora,* Europe, North-Africa.

126. **Trifolium globosum.** Linn. Canton. Sin: *tsin li quong.* Lour. 542.

D. C. II. 196. Syria, Arabia, Italia.

127. **Indigofera tinctoria.** Linn. China, Cochin. Spont. cult. Sin : *lan tsao* (藍草), *ta cim* (大青).

Osb. 58.—Fl. hgk. 77.

128. **Indigofera rotundifolia.** Lour. Canton. Sin : *o tam sin*. 559.

D. C. II. 233. Species dubia.

129. *Indigofera coccinea*. Lour. Canton. Sin: *louc ham tsao*. 559.

D. C. II. 232. **Indig. hedysaroïdes.** Lam. ? India orient.

130. **Robinia amara.** Lour. China, Cochin. Sin : *khu sem* (苦參 ?) 556.

D. C. II. 262. Species dubia. In Japan the above Chinese name is applied to *Sophora angustifolia*. S. et Z.

131. **Glycyrhiza echinata.** Linn. China borealis. Sin : *Fu chau can tsao* (府州甘草). Lour. 543.

D. C. II. 248. Tataria.

132. **Glycyrhiza glabra.** Linn. China, in variis locis. Sin : *Fan chau can tsao* (汾州甘草). Lour. 543.

D. C. II. 247. Europa austr.—*Gl. glabra*, var. *glandulosa* has been observed in North-China and may yield a part of Chinese Liquorice root (*kan ts'ao*). According to Chinese books the best comes from the north-western provinces. *Fu chou* (see 131.) is an ancient name for Fu ku hien in N. Shensi, *Fan chou fu* is in Shansi.

133. *Diphaca cochinchinensis*. Lour. China, Cochin. cult. 554.

G. Pl. I. 515. Genus **Ormocarpum.** Beauv.

134. *Arachis asiatica*. Linn. China, Cochin. cult. Lour. 522.

D. C. II. 474. **Arachis hypogaea.** L.—Osb. 62.

135. *Hedysarum diphyllum*. Linn. Canton. Lour. 548.

D. C. II. 316. **Zornia angustifolia.** Sm. India orient.—Fl. hgk. 80.

136. *Hedysarum triflorum*. Linn. Canton. Sin : *sie thoi tsao*. Lour. 549.

D. C. II. 334. **Desmodium triflorum.** India, China.—Osb. 66.—Fl. hgk. 83.

137. *Hedysarum triquetrum*. Linn. Cochin. Lour. 547.

D. C. II. 326. **Desmodium triquetrum.** Ind. orient.—Osb. 63.—Fl. hgk. 83.

138. *Hedysarum pulchellum*. Linn. Canton. Sin : *a pho sien* (阿婆錢 Parker.) Lour. 548.

Osb. 69.—Fl. hgk. 83. **Desmodium pulchellum.** Benth.

139. *Hedysarum gangeticum*. Linn. Canton. Sin : *tsung loung thu*. Lour. 547.

D. C. II. 327. **Desmodium gangeticum.** Ind. orient.—Osb. 64.

140. *Hedysarum elegans*. Lour. Canton. Sin : *hap chiong tsao*. 549.

D. C. II. 339. *Dicerma elegans*.—Fl. hgk. 83. **Desmodium elegans.** Benth.

141. *Hedysarum lagopodioïdes*. Linn. Canton. Sin : *Tsui fum tsao*. Lour. 549.

Osb. 70.—D. C. II. 324. **Uraria lagopoides.**

142. *Hedysarum reniforme* Linn. Canton. Sin: *lo im tsao*. Lour. 545.

D. C. II. 324. **Lourea reniformis.** De Cand. quotes only Lour. and his spec. in Mus. Paris.—The plant of Linn. is referred to Desmodium reniforme (II. 327.)

143. **Vicia Faba.** Linn. China cult. Cochin. rara. Sin: *sam teu* (蠶 豆). Lour. 540.

Much cultivated also in N. China.

144. **Pisum sativum.** Linn. China, Cochin. cult. non frequens. Lour. 539.

Largely cultivated in N. China.

145. **Abrus precatorius.** Linn. Cochin. Lour. 520.

Osb. 72.—Fl. hgk. 92.

146. *Dolichos Soja*. Linn. China, Cochin. cult. Sin : *hoam teu* (黃 豆) Lour. 537.

D. C. II. 396. *Soja hispida.* Moench.—G. Pl. I. 530. **Glycine Soja.**—Osb. 73.—Largely cultivated throughout China.

147. *Erythrina corallodendron*. Linn. China aust., Cochin. Sin : *tum ye xu* (冬 葉 樹). Lour. 519.

D. C. II. 412. **Eryth. indica.** Lam.

148. **Phaseolus vulgaris.** Linn. Cochin. raro. Lour. 527.

Cultivated in N. China.

149. **Phaseolus radiatus.** Linn. Colit. China, Cochin. Sin : *liu teu* (綠 豆). Lour. 529.

Osb. 74.—Cultivated throughout China.

150. **Phaseolus Mungo.** Linn. Colit. China, Cochin. Sin : *siao teu* (小 豆), *tsiam teu* (豇 豆). Lour. 530.

D. C. II. 395. India orient.—The second Chinese name Lour. gives is applied in Peking to *Dolichos sinensis.*

151. *Dolichos trilobus*. Linn. Cult. China, Cochin. Tubera esculenta. Sin: *ken co* (根 葛). Lour. 535.

D. C. II. 402. Lour.'s plant (non Linn.) **Pachyrhizus trilobus.**—See above Martini. 26.

152. *Dolichos tetragonqlobus*. Linn. China, Cochin. Lour. 532.

D. C. II. 403. **Psophocarpus tetragonolobus.** Ind. orient.

153. **Dolichos sinensis.** Linn. Cult. China, Cochin. Sin : *tau co, teu co* (豆 角). Lour. 530.

Osb. 75.—Largely cultiv. in China.

154. *Dolichos ensiformis*. Linn. China, Cochin. Colit. Sin : *tao teu* (刀 豆). Lour. 531.

D. C. II. 404. Canavalia ensiformis. India orient.—Osb. 76.—Fl. hgk. 88.

155. **Dolichos Catjang.** Linn. China, Cochin. cult. Lour. 538.

var. 1. *he teu* (黑 豆).
var. 2. *min teu* (麵 豆).
var. 3. *siao hum teu* (小 紅 豆).

D. C. II. India orient.—*Hei tou* in Peking is a black variety of *Glycine Soja.*—*Min tou* in Canton (Parker) is *Cajanus indicus.* Spr.

156. *Dolichos unguiculatus.* Thbg. China. In Lusitaniam translatus. Lour. 531.

D. C. II. 400. Dolichos umbellatus. Thbg. Japonia.

157. **Dolichos biflorus.** Linn. Canton. Sin: *san ou.* Lour. 537.

D. C. II. 398. India orient.

158. *Dolichos purpureus.* Linn. China, Cochin. cult. Sin: *teu pien teu* (紫 扁 豆). Lour. 534.

D. C. II. 401. Lablab vulgaris. Savi. var. purpureus. India orient. Aegypt.—Cultivated throughout China.

159. *Dolichos albus.* Lour. China, Cochin. cult. Sin: *pe pien teu* (白 扁 豆). 534.

D. C. II. 402. *Lablab perennans.* The above Chinese name is applied in Peking to Lablab vulgaris. var. albiflorus.

160. *Cytisus Cajan.* Linn. China, Cochin. Sin: *xan teu ken* (山 荳 根). Lour. 565.

D. C. II. 406. Cajanus flavus. India orient.—Fl. hgk. 89.

161. **Rhynchosia volubilis.** Lour. Canton. Sin: *chio tau* 562.

D. C. II. 385. Specim. Lour. in hb. Mus. Paris.—Fl. hgk. 90.

162. **Pterocarpus flavus.** Lour. In sylvis sinensibus. Sin: *hoam pe mo* (黃 皮 木). Imperfectly known to Lour. 525.

163. *Derris trifoliata.* Lour. Provincia Çanton. Sin: *san liao tao.* 526.

D. C. II. 415. Specim. in hb. Mus. Paris.—Fl. hgk. 94. Derris uliginosa, var. Loureiri.

164. *Robinia mitis.* Linn. China, Cochin. Sin: *khu sem* (苦 參 ?). Lour. 555.

D. C. II. 416. Pongamia chinensis. (Lour.'s plant). Non satis nota.—Hook. et Arn. bot. Beech. 181. South-China.—*P. glabra* Vent (Rob. mitis. L.) has been observed in Hongkong. Fl. hgk. 94.

165. *Robinia flava.* Lour. China borealis. Sin: *hoam khin* (黃 芪 ?) 556.

D. C. II. 263. Species dubia.—There is some reason for supposing that Lour. intended the above Chinese characters, confounding the second, which is pronounced *k'i* with 芹 *k'in.*—*Huang k'i* in Peking is **Sophora flavescens.** Ait.

166. *Mimosa corniculata.* Lour. Canton. Sin: *hoai .hoa.* (槐 花). 800.

D. C. II. 430. Spec. dubia.—The above Chin. name is applied in Peking, and in Chin. botan. works to **Sophora japonica.** L. a common tree in China.—Fl. hgk. 95.—Lour.'s description of his Min. corniculata agrees with S. japonica, with the exception of the bipinnate leaves. But he repeatedly commits this error in taking a small branch for a common leafstalk. See further on 409, Campsis adrepens.

167. *Anagyris foetida.* Linn. Canton. Sin: *pa pai.* Lour. 318.

G. Pl. I. 556. Lour.'s plant (not Linn.'s, which is a native of Europe) is referred by Benth. and Hooker to **Ormosia.**

168. **Caesalpinia Sappan.** Linn. Cochin. Sin: *su fam mo* (蘇 方 木). Lour. 320.

This tree is probably not found in China, but the Chinese know well the Sapan wood.

169. **Guilandina Bonducella.** Linn. Canton. Sin: *nam sie lac.* Lour. 325.

Fl. hgk. 96.

170. *Mimosa fera.* Lour. China, Cochin. Sin: *tsao kie* (皂 莢). 801.

D. C. II. 429. is right in supposing, that this is a Gleditschia. The above Chinese name is applied to **Gleditschia sinensis.** Lam. a common tree in Peking as well as in S. China.—Fl. hgk. 100.

171. **Poinciana pulcherrima.** Linn. China, Cochin. Lour. 319.

D. C. II. 484. India orientalis.—Cultivated in Canton.

172. **Cassia Tora.** Linn. Cochin. Lour. 322.

173. **Cassia obtusifolia.** Linn. China, Cochin. Sin: *tsao kit lam* (草 決 明). Lour. 323.

Fl. hgk. 98. C. obtusifolia is referred to C. Tora.

174. *Cassia procumbens.* Linn. China, Cochin. Lour. 324.

Osb. 78.—D. C. II. 504. **Cassia pumila.** Lam. I. 651. China, India.

175. **Cassia Sophera.** Linn. China austr.—Sin: *ay tsi tau, kiue mim tsu.* (決 明 子). Lour. 324.

Osb. 77.—D. C. II 492. India, China.—Peking, cultivated.

176. **Tamarindus indica.** Linn. Cult. Cochin. Lour. 488.

Osb. 79.

177. *Mimosa arborea.* Linn. Canton. Sin: *yam mu* ([illegible] 木?). Lour. 800.

Linn.'s plant is a native of America. Thunberg's M. arborea of Japan, quoted by Lour., is **Acacia Nemu.** Willd. Frequent in N. China.

178. *Mimosa farnesiana.* Linn. Cochin. Lour. 801.

Fl. hgk. 101. Acacia farnesiana. Willd.

179. **Prunus domestica.** Linn. In plerisque Sinarum provinciis. Sin: *muei xu.* (梅樹). Lour. 388.

Largely cultivated in N. China, but more commonly termed 李 *li.*

180. **Amygdalus persica.** Linn. China, cult. Sin: *tao ho gin* (桃核仁). Lour. 386.

Cultivated throughout China.

181. **Amygdalus pumila.** Linn. China. Sin: *dao hoa koung* (桃花紅). Lour 387.

Comp. Maximowicz, Fragm. fl. Asiae orient. 1879. p. 14.

182. **Amygdalus communis.** Linn. Habitat et colitur affatim in China. Sin: *him ho gin* (杏核仁) Lour. 386.

As my friend Dr. Hance wrote me some years ago, he has never heard of the Almond tree having been observed in China. The *A. communis* in Bunge's enum. pl. Chin. bor. is *Persica Davidiana.* The Chinese name Lour. gives for the Almond is as far as I know only applied to the Apricot, the kernels of which are used in China like almonds in the West.

183. **Spiraea cantoniensis.** Lour. Canton. Sin: *tsi chouc hoa* (珍珠花). 394.

Flor. hgk. 105.

184. **Rubus parvifolius.** Linn. China, Cochin. Lour. 398.

D. C. II. 564. Osb. 81.—Fl. hgk. 105.

185. **Fragaria vesca.** Linn. Habitat et colitur in China. Sin: *fu puen tsu* (覆盆子). Lour 398.

Probably another species.—*Fragaria elatior.* Ehrh. has been observed by my friend Mr. W. Hancock in the mountains west of Peking. (Maxim. l. c. p. 17.)

186. **Potentilla fruticosa.** Linn. China borealis. Sin: *yam chi cho* (羊躑躅). Lour. 399.

Frequent in N. China. But the Chinese name Lour. applies to the plant is wrong, being that for *Rhododendron.*

187. **Rosa centifolia.** Linn. China. Sin: *ta mui hoa* (大玫花). Lour. 396.

Not observed in China after Lour.

188. **Rosa cinnamomea.** Linn. China, Cochin. cult. Sin: *mui hoa* (玫花). Lour. 395.

Peking, cultivated.

189. **Rosa spinosissima.** Linn. Flos rubescens. Cochinchina. Lour. means, that this may be *Rosa sinica.* Linn. Lour. 395.

190. **Rosa indica.** Linn. China, Cochin. Sin: *tsiam hoa* (薔花). Lour. 396.

Osb. 82.—Fl. hgk. 108.

191. **Rosa nankinensis.** Lour. Nanking. Sin: *tsiao mui hoa*. 397.

According to Dr. Regel. Monogr. Rosar. 357. a variety of *Rosa semperflorens* Act. (a native of China.)

192. **Rosa alba.** Linn. China, Cochin. Sin: *kin ym* (金櫻), Lour. 396.

193. **Pyrus Malus.** Linn. China borealis. Sin: *pim po* (蘋婆). Lour. 393.

Cultivated in N. China.

194. **Pyrus communis.** Linn. Canton. cult. Sin: *ly* (梨). Lour. 393.

The Pears cultivated in N. China are for the greater part varieties of P. *chinensis*. Lindley.

195. *Pyrus Cydonia*. Linn. Pomum ovatum. China borealis. Sin: *mu qua* (木瓜). Lour. 394.

Probably **Cydonia sinensis**. Thouin, cultivated in the northern provinces.

196. **Mespilus pyracantha.** Linn. China, agr. et cult. Sin: *tan kieou tsu* (棠梂子), *san cha* (山楂). Lour. 392.

In Peking the above Chinese names are applied to *Crataegus pinnatifida*. Bge., in Japan to *Crataegus cuneata*. Sieb. es Zucc. and *Crataegus sanguinea*. Pall.

197. *Crataegus bibas*. Lour. Macao, Canton. Sin: *pi pa su* (枇杷樹). 391.

Fl. hgk. 108. **Eriobotrya japonica**. Lindl.

198. *Crataegus rubra*. Lour. Canton. Sin: *u ly mu*. 391.

D. C. II. 630. **Raphiolepis rubra**. Lindl. Fl. hgk. 108. Bentham regards it as identical with *R. indica*.

199. *Opa metrosideros*. Lour. Cochin. 379.

Decaisne, Pomac. 183. identifies it with **Raphiolepis indica**. Lindl. Fl. hgk. 107.—But in the G. Pl. I. 719. it is combined with *Sisygium* resp. *Eugenia*.

200. **Saxifraga chinensis.** Lour. Canton. Sin: *ho ngi tsao* (虎耳草). 345.

D. C. IV. 43. *Saxifraga sarmentosa*. L.—Linn. Chin. pl. 84. Maxim. Dec. XII. means that Lour.'s species is different.

201. *Primula mutabilis*. Lour. Canton, cult. Sin: *sau cau hoa* (繡毬花). 127.

D. C. IV. 15. **Hydrangea Hortensia**. China, Japan cult.

202. *Dichroa febrifuga*. Lour. China, Cochin. Sin: *cham chan*. 369.

Fl. hgk. 128.

203. *Cedrela rosmarinus*. Lour. North-Cochin. Macao. Sin: *ti phu pi*. 199.

D. C. IV. 6. **Itea.** Spec. dubia.

204. *Cotyledon laciniata*. Linn. Cochin. 352.

D. C. III. 395. **Kalanchoe laciniata.** Java, Molucc. Probably the same as *K. ceratophylla*. Haw. Has been observed in the province of Yünnan. (Hook. fl. ind.)

205. *Crassula pinnata*. Linn. Cochin. China? Lour. 231.

Kalanchoe pinnata. Pers.—*Bryophyllum calycinum* Salisb. Fl. hgk. 127. Add. fl. hgk. 103.

206. **Sedum anacampseros.** Linn. China, Cochin. Sin: *pa touc san* (扒毒散). Lour. 353.

D. C. III. 403. European species.

207. **Sedum stellatum.** Linn. Canton. Sin: *cheu li* Lour. 353.

D. C. III. 404. European species.

208. **Drosera umbellata.** Lour. China. Sin: *ku tsim tsao* (穀精草). 232.

Lour. applies the same Chinese name to Eriocaulon. See 624.

209. *Drosera rotundifolia*. Linn. Cochin. Lour. 232.

Hook. et Arn. bot. Beech. 167. **Drosera Loureiri.**—Fl. hgk. 130.

210. **Quisqualis indica.** Linn. Canton, Cochin. Sin: *xi kiun tsu* (使君子). Lour. 336.

Hance Journ. Bot. 1879. 10. Canton province, Hainan. The same as *Q. sinensis*. Lindl.

211. *Psidium pyriferum*. Linn. and Ps. *pomiferum*. Linn. China, Cochin. cult. Lour. 378, 379.

Fl. hgk. **Psidium Guyava.** Linn.—Osb. 86.

212. **Psidium caninum.** Lour. Canton. Sin: *pa hoa*. 379.

213. *Myrtus canescens*. Lour. Cochin. 381.

D. C. III. 240. **Myrtus tomentosa.** Ait. Fl. hgk. 121.

214. **Eugenia malaccensis.** Linn. India, Malacca, Macao. Lour. 374.

215. **Caryophyllus aromaticus.** Linn. In sylvis Cochin. borealis. Sin: *xan tim hiam* (山丁香). Lour. 406.

D. C. III. 262. In Moluccis.—

216. O*pa odorata*. Lour. Cochin. 377.

D. C. III. 261. *Syzygium odoratum*. Stauuton. China.—G. Pl. I. 719. **Eugenia odorata.**

217. **Osbeckia chinensis.** Linn. Canton. Sin: *kam yong lu* (金香爐). Lour. 281.

Osb. 87.—Fl. hgk. 114.

218. **Melastoma dodecandrum.** Lour. Canton, Cochin. Sin: *pe gie hong* (百 日 紅). 336.

219. *Blastus cochinchinensis.* Lour. Cochin. 643.

Fl. hgk. 116. Add. fl. hgk. 103. **Anplectrum parviflorum.** Bth. Observed also in Formosa.

220. *Lawsonia spinosa.* Linn. Cochin. cult. Lour. 281.

D. C. III. 91. **Lawsonia alba.** Lam.—Osb. 92.

221. **Lagerstroemia indica.** Linn. China, Cochin. spont. cult. Sin: *sat chu moi hoa* (山 紫 薇 花). Lour. 415.

Linn. Chin. pl. 93.—Fl. hgk. 112.

222. **Punica granatum.** Linn. Habitat et colitur in China et Cochin. Sin: *han se lieu* (番 石 榴). Lour. 383.

Osb. 94.

223. *Epilobium tetragonum.* Linn. China, Cochin. Sin: *soy hoang teng*. Lour. 276.

D. C. III. 55. Lour.'s plant (non L.) **Jussiaea tetragona.** Spr.

224. *Cubospermum palustre.* Lour. Cochin. 337.

D. C. III. 54. **Jussiaea repens.** Linn.—Osb. 95. Dr. Hance. Canton. Journ. Bot. 1880. p. 261.

225. **Gaura chinensis.** Lour. Canton. Sin: *san si tsao*. 276.

226. *Trapa chinensis.* Lour. Canton. Sin: *ki xi* (芰 實), *leng co* (菱 角). 109.

D. C. III. 64. **Trapa bicornis.** Linn. fil.—Osb. 96.—In Peking the above names are applied to *Tr. bispinosa.* Roxb.

227. *Astranthus cochinchinensis.* Lour. Cochin. 274.

Fl. hgk. 122. **Homalium fagifolium.** Benth.

228. **Passiflora coerulea.** Linn. Canton. spont. Sin: *u si hoa*. Lour. 644.

Roem. Peponiferae 184. Lour.'s plant (non Linn.) *P. Loureiri.* Don. Meyen obs. bot. 337. *P. coerulea,* Macao, cult.

229. **Carica Papaya.** Linn. China, Cochin. cult. Sin: *man xeu co* (萬 壽 果). Lour. 772.

American plant cultivated throughout the tropics.

230. **Trichosanthes anguinea.** Linn. China, Cochin. cult. esculenta. Lour. 722.

Linn. Chin. pl. 97.

231. *Cucurbita Lagenaria.* Linn. China, Cochin. cult. Sin: *hu qua* (瓠 瓜), *ho lo* (壺 盧). Lour. 728.

D. C. III. 299. **Lagenaria vulgaris.** Sav.—Osb. 98.

232. *Cucumis acutangulus.* Linn. China, Cochin. cult. Lour. 727.

D. C. III. 303. **Luffa acutangula.**—Lin. Chin. pl. 99.

233. *Momordica Luffa.* Linn. China, Cochin. cult. Sin: *su qua* (絲 瓜). Lour. 724.

D. C. III. 303. **Luffa aegyptiaca.** (i. e. Linn.'s plant). Lour.'s plant according to Naudin (Cucurb. in Ann. sc. nat. XII, 1859, 119.) **Luffa cylindrica.** Roem.

234. *Momordica cylindrica.* Linn. Canton, cult. Sin: *soy qua* (絲 瓜). Lour. 725.

According to Naudin, l. c. the same as the preceding.

235. **Momordica Charantia.** Linn. China, Cochin. cult. Sin: *kku qua* (苦 瓜). Lour. 725.

Flora hgk. 125.

236. *Muricia cochinchinensis.* Lour. China, Cochin. Sin: *mo pie su* (木 鼈 子). 733.

G. Pl. I. 825. **Momordica cochinchinensis.**

237. *Cucurbita Pepo.* Linn. China, Cochin. cult. Sin: *tum qua* (冬 瓜). Lour. 728.

The above Chin. name is applied in Peking to **Benincasa cerifera.** Lav.—Naudin l. c. 87 also identifies Lour.'s plant with Benincasa.

238. **Cucumis sativus.** Linn. China, Cochin. cult. Sin: *hoam qua* (黄 瓜).

The Cucumber is much cultivated throughout China.

239. **Cucumis Melo.** Linn. China, Cochin. cult. Sin: *can qua* (甘 瓜). Lour. 726.

Various varieties of Melons are cultivated in N. China, as well as in the South.

240. *Cucurbita Melopepo.* Linn. China, Cochin. cult. Sin: *nan qua* (南 瓜), *fan qua* (番 瓜). Lour. 729.

Naudin l. c. 84. Lour.'s plant (non Linn.) **Cucurbita moschata.** Duch.

241. **Cucurbita Citrullus.** Linn. China, Cochin. cult. Sin: *si qua* (西 瓜). Lour. 730.

Osb. 101. The Water Melon is largely cultivated in all parts of China.

242. *Solena heterophylla.* Lour. China, Cochin. Sin: *kku leu* (栝 樓), *tien hoa fuen* (天 花 粉). 629.

D. C. III. *Bryonia heterophylla.*—G. Pl. I. 820. **Coccinia.** Spec. dubia. In Peking the above Chinese names are applied to *Trichosanthes palmata.* Roxb.

243. *Bryonia hastata.* Lour. Canton. Sin: *si toung qua.* 731.

Fl. hgk. 124. *Karivia umbellata.* Arn.—Add. Fl. hgk. 104. **Zehneria umbellata.** Thw.

244. **Melothria indica.** Lour. Cochin. 43.

Hce. Add. Fl. hgk. 104.

245. *Mollugo triphylla.* Lour. Canton. Sin: *ha khim su.* 79.

Osb. 108.—Fl. hgk. 23. **Mollugo stricta.** Linn.—Benth. combines also *M. pentaphylla.* Linn. with this plant.

246. *Trisanthus cochinchinensis.* Lour. China, Cochin. 219.

D. C. IV. 63. **Hydrocotyle abbreviata.** Rich.

247. **Sium sisarum.** Linn. China, Cochin. cult. Sin: *suei kin* (水 芹). Lour. 223.

This plant has never been observed in China. See above Linn. Chin. pl. 106.—The above Chinese name is applied in Japan to *Oenanthe stolonifera.* D. C.

248. *Sium graecum.* Linn. Cochinchina, China. ? Lour. 223.

Linn.'s plant as well as that of Lour. are dubious. Comp. D. C. IV. 159. *Ligusticum graecum* and 143 *Kundmannia sicula.*

249. *Anethum Foeniculum.* Linn. Abundanter in China, colit. etiam in Cochin. Sin: *hoei hiam* (茴 香). Lour. 226.

D. C. IV. 142. **Foeniculum vulgare.** Gaertn. Europa.—Much cultivated in Peking.

250. *Athamanta chinensis.* Linn. China, Cochin. cult. spont. Sin: *xe choan* (蛇 床). Lour. 222.

Lin. Chin. pl. 108.—D. C. IV. 152. **Selinum (Cnidium) Monnieri.**

251. **Coriandrum sativum.** Linn. Colitur in China, raro in Cochin. Sin: *xe hu yu.* Lour. 225.

D. C. IV. 250 considers Loureiro's Coriander a dubious plant. But C. sativum is much cultivated in North-China as well as in the South.—Fl. hgk. 135.

252. **Daucus Carota.** Linn. Canton, indeque in Cochin. translata. Sin: *hu lu pa* (胡 蘿 蔔). Lour. 222.

Cultivated throughout China.

253. *Caucalis orientalis.* Linn. Canton. Lour. 221.

Hance advers. 15. **Torilis praetermissa.** Canton.

254. **Aralia chinensis.** Linn. Cochinchina. Lour. 234.

Osb. 109.—Fl. hgk. 135.

255. **Aralia octophylla.** Lour. Cochin: Canton (varietas). 233.

D. C. IV. 258. Dubia.

256. **Panax fruticosum.** Linn. China, Cochin. cult. Lour. 806.

D. C. IV. 254. Java.

257. *Plectronia chinensis.* Lour. Prov. Canton. 201.

D. C. IV. 252. **Panax Loureirianum.** Perhaps the same as *Panax aculeatum* or *Acanthopanax aculeata.* Osb. 111.—Add. Fl. hgk. 104.

258. *Aralia palmata.* Lour. China. Sin: *u kia pi* (五加皮). 233.

D. C. IV. 264. Hedera scandens.

259. *Stylidium chinense.* Lour. Canton. Sin : *pau tsau.* 273.

D. C. IV. 267. Marlea begonifolia. Rxbg. Nepal. China.

260. *Sambucus nigra.* Linn. In montanis Sinensibus. Sin; *u chu yu* (吳茱萸). Lour. 226.

D. C. IV. 323. Sambucus Loureiriana. Dubia.

261. *Phyteuma bipinnata.* Lour. Suburb. Canton. Sin: *tcha leang tsao.* 172.

D. C. IV. 323. Sambucus ebuloïdes (specim. Lour. in Mus. Par.)

262. *Lonicera Xylosteum.* Linn. China, Cochin. Sin: *kim ngan hoa* (金銀花). Lour. 186.

D. C. IV. 334. Lonicera Loureiri. Dubia.—In Peking the above Chinese name is applied to *L. chinensis.* Wats.

263. *Lonicera periclymenum.* Linn. In multis locis imp. Sinensis. Sin: *gin tum* (忍冬). Lour. 185.

D. C. IV. 333. Lonicera confusa.?—Fl. hgk. 144. *Lon. multiflora.* Champ.—Maxim. diagn. plant. nov. asiat. II. 57.

264. **Polyozus lanceolata.** Lour. Canton. Sin: *am san cung.* 94.

Gen. Pl. II. 29. Specim. in Mus. Britann. Genus dubium. D. C. IV. 494. Genus Rubiacearum.

265. *Cephalanthus montanus.* Lour. China. Sin: *san yong mai.* 84.

D. C. IV. 622. Planta ignota, certe non Cephalanthus.

266. **Cephalanthus occidentalis.** Linn.? China. Sin: *soy yong mai.* Lour. 83.

G. Pl. II. 29. Planta dubia.—D. C. IV. 539. *Ceph.? orientalis.* Roem. et Schult. (non Linn.).—Comp. Fl. hgk. 146. *Ceph. occidentalis* (sub *Adina.*)

267. *Oldenlandia repens.* Linn. Canton. Sin: *ha kim tsao.* Lour. 98.

D. C. IV. 419. Dentella repens. Forst.

268. **Oldenlandia paniculata.** Linn. Cochin. Lour. 99.

Fl. hgk. 152.

269. **Hedyotis herbacea.** Linn. Cochin. Lour. 98.

Osb. 114.—Fl. hgk. 151, note.

270. *Mussaenda chinensis.* Lour. Suburb. Canton. 189.

D. C. IV. 373. Dubia, a genere removenda.

271. *Oxyceros sinensis.* Lour. Canton. Sin: *cai tsoi lac.* 187.

Fl. hgk. 155. Randia sinensis. Roem. et Sch.

272. **Gardenia florida.** Linn. China, Cochin. Sin: *chy tsu* (梔子). Lour. 183.

Linn. Chin. pl. 117.—Fl. hgk. 153.

273. *Gardenia volubilis.* Lour. Suburb. Canton. Sin: *xang lan than.* 184.

D. C. IV. 383. Dubia, a Gardeniis videtur excludenda.

274. *Genipa? flava.* Lour. Canton. Sin: *uat thau cay.* 185.

275. *Ixora coccinea.* Linn. Cochin. Lour. 95.

D. C. IV. 486. **Ixora stricta.** Rxbg.—Osb. 118.—Fl. hgk. 158.

276. *Pavetta arenosa.* Lour. Canton. Sin: *ta sa.* 92.

D. C. IV. 493. A genere forte ab ordine excludenda.

277. *Gentiana scandens.* Lour. China, Cochin. Sin: *ki si than* (雞屎藤). 213.

D. C. IX. 119. **Paederia foetida.** Linn.—Fl. hgk. 162.—

278. *Dysoda fasciculata.* Lour. China, Cochin. Sin: *man tsien yong.* (滿天星). 181.

D. C. IV. 575. **Serissa foetida.** Comm. *Lycium foetidum* Linn. fil. suppl. 150.—Journ. Bot. 1874. 183. Hance in Amoy. spont. Bullock? in the prov. of Hunan. (Journ. Bot. 1880 p. 261.)

279. **Galium tuberosum.** Lour. China, Cochin. cult. Sin: *koam cim* (黃精). 99.

D. C. IV. 611. Pl. dubia.—In Chinese botan. works the above Chinese name is applied to various species of *Polygonatum.* See Chi wu ming shi t'u k'ao VIII. tab. 18, 19, 20, 21.—In Peking *Pol. sibiricum.* Red. bears this name.

280. **Crucianella angustifolia.** Lour? China. Sin: *uei lin sien* (see above 1, clematis). Lour. 100.

D. C. IV. 586. European spec.

281. **Scabiosa cochinchinensis.** Lour. China, Cochin. Sin: *ti tan tsao* (地膽草). 85.

D. C. IV. 661. Stirps dubia.—The above Chin. name is applied in Canton to *Elephantopus scaber.* Linn. (Parker.)

282. *Spilanthus tinctorius.* Lour. China, Cochin. cult. 590.

D. C. V. III. **Adenostemma tinctorium.** Cass.

283. **Ageratum ciliare.** Linn. Canton. Lour. 591.

D. C. V. 109. India orient. Spec. obscura.

284. **Solidago cantoniensis.** Lour. Canton. Sin: *kam siong hoa.* 612.

Comp. Osb. 123.

285. **Solidago decurrens.** Lour. Canton. Sin: *hoang kam siong.* 612.

D. C. V. 342. Spec. dubia.

286. **Pteronia tomentosa.** Lour. Canton. Sin: *chu hoa mu.* 597.

287. *Matricaria cantoniensis.* Lour. Canton. Sin: *hi su tsu.* 609.

D. C. VI. 44. *Hisutsua cantoniensis.* (Lour. specim. in hb. Mus. Paris.).—Fl. hgk. 174. Boltonia indica. Bth.—Osb. 124.

288. *Aster indicus.* Linn. China, spont. cult. Sin: *ma lan hoa* (馬蘭花). Lour. 615.

Osb. 124.—D. C. V. 303. Asteromaea indica. Bl.—Hce. add. fl. hgk. 107. Variety of *Boltonia indica.*

289. *Aster chinensis.* Linn.—Lour. 615, mentions this plant (**Callistephus chinensis.** Nees.) but states that he has not seen it.—Osb. 125.

290. **Erigeron hirsutum.** Lour. Canton. Sin: *ha si houc.* 611.

291. **Baccharis chinensis.** Lour. Canton. Sin: *san po long.* 604.

D. C. VII. 283. Hook. et Arn. bot. Beech. 195. South-China.

292. *Conyza chinensis.* Linn. Cochin. Lour. 606.

D. C. V. 445. Blumea chinensis.—Osb. 226.—Fl. hgk. 177.

293. *Baccharis Salvia.* Lour. (Conyza balsamifera. Linn.) 603.

D. C. V. 447. Blumea balsamifera.—Hanbury Science pap. 393. Peculiar Camphor from China.

294. *Baccharis Dioscorides.* Linn. China, Cochin. cult. spont. Sin: *laong fu su.* Lour. 603.

D. C. V. 450. Pluchea Dioscorides.—In Aegypto.

295. *Conyza hirsuta.* Linn. China, Cochin. Sin: *ho mi tsao.* Lour. 606.

D. C. V. 453. Pluchea hirsuta. Less.—Osb. 127.

296. **Sphaeranthus cochinchinensis.** Lour. China, Cochin. 623.

297. **Gnaphalium indicum.** Linn. Cochin. Lour. 608.

Flor. hgk. 188.

298. **Buphthalmum oleraceum.** Lour. China, Cochin. cult. 618.

299. **Xanthium strumarium.** Linn. China, Cochin. Lour. 689.

Linn. Chin. pl. 122.—Fl. hgk. 181.

300. **Siegesbeckia orientalis.** Linn. Cochinchina, China, sed Lour. ibi non obvia. 616.

Osb. 128.—Fl. hgk. 182.

301. 302. *Eclipta erecta.* Linn. et *E. prostrata* Linn. Lour. 617. 618.

Osb. Ct. 134.—Fl. hgk. 181. Benth. combines both of them with Eclipta alba. Hassk.

303. *Verbesina calendulacea.* Linn. Canton. Sin: *fan khi kouc* (蟛蜞菊 Parker.). Lour. 619.

D. C. V. 589. Wedelia calendulacea. Less.—Osb. 135—Fl. hgk. 182.

304. *Helianthus giganteus.* Linn. China, Cochin. cult. Sin: *hoam quei hoa* (黃葵花). Lour. 623.

D. C. V. 591. Helianthus cochinchinensis? Pers.

305. **Verbesina spicata.** Lour. China, Cochin. cult. Sin: *thien oai tsai.* 620.

D. C. V. 618. Dubia.

306. **Coreopsis biternata.** Lour. Canton. 605.

307. **Bidens bipinnata.** Linn. China, Cochin. Lour. 596.
Fl. hgk. 183.

308. **Bidens pilosa.** Linn. Cochin. Lour. 596.
Fl. hgk. 183.

309. *Coreopsis leucorhiza.* Lour. Canton. Sin: *fam fum* (防風). 622.
D. C. V. 605. Bidens leucorhiza?

310. **Tagetes patula.** Linn. China, Cochin. cult. Lour. 616.
Cultivated throughout China.

311. **Cotula anthemoides.** Linn. Cochin. Lour. 602.
Fl. hgk. 185.

312. *Chrysanthemum procumbens.* Lour. China, Cochin. Sin: *siao kio hoa.* (小菊花). 610.

Osb. 136.—Fl. hgk. 184.—Maximow. Dec. X. 516. Pyrethrum (Chrysanthemum) indicum Cass.var. & genuinum. (the wild growing form.)

313. *Chrysanthemum indicum.* Linn. China, Cochin. cult. Sin: *ta kio hoa.* (大菊花.). Lour 610.

Osb. 137.—Maxim. l. c. 518. Pyrethrum sinense. Sab. var. plenum.

314. **Centipeda orbicularis.** Lour. Cochin. 602.

Linn. Chin. pl. 138.—Fl. hgk. 186.

315. *Artemisia chinensis.* Linn. Canton. Ex foliis fit *Moxa.* Sin: *khi ngai* (蘄艾). Lour. 600.

Linn. Chin. pl. 139.—Maxim. Dec. XI. Tanacetum chinense. A. Gray.

316. **Artemisia vulgaris.** Linn. China, Cochin. spont. cult. Sin: *ngai ye* (艾葉). Lour. 600.

Osb. 140.—Fl. hgk. 187.

317. **Artemisia annua.** Linn. Peking. Sin: *tsao cao* (草蒿). Lour. 599.

Fl. hgk. 187.—Common in North-China. 香蒿 *hiang hao.*

318. **Artemisia Abrotanum.** Linn. China, Cochin. cult. spont. Sin : *yn chin hao* (茵 陳 蒿). Lour. 598.

D. C. VI. 106. Stirps Lour. certe diversa.

319. **Artemisia aquatica.** Lour. China, Cochin. cult. Sin : *kai tum*. Lour. 598.

D. C. VI. 126. An vera Artemisiae spec ? *Eupatorium foeni culaceum* Bess ?

320. **Artemisia judaica.** Linn. China, Cochin. Sin : *ngaoc fu yong*. Lour. 597.

D. C. VI. 106. Stirps Lour. videtur diversa.

321. *Tussilago Farfara*. Linn. China borealis. Sin: *kuan tum hoa* (款 冬 花). Lour. 614.

In Japan the above Chin. name is applied to **Petasites japonicus.** Miq.

322. *Cacalia pinnatifida*. Lour. Canton. Sin : *cien san sat* (田 三 七) 593.

D. C. VI. 301. **Gynura ? pinnatifida.**—Cultivated in Peking.

323. *Senecio divaricatus*. Linn. Canton. Sin : *kam sium lin*. Lour. 613.

D. C. VI. 301. **Gynura divaricata.**—Osb. 142.

324. *Cacalia procumbens*. Lour. China, Cochin. cult. spont. Lour. 592.

D. C. VI. 298. **Gynura sarmentosa ?**

325. *Cacalia bulbosa*. Lour. China, Cochin. cult. spont. Sin : *san sat* (三 七). 592.

D. C. VI. 301. *Gynura bulbosa*. Hook. et Arn. bot. Beech. 194. Fl. hgk. 189. identifies the latter plant with **G. pseudochina.** D. C.

326. *Cacalia sonchifolia* Linn. Cochin. Lour. 593.

D. C. VI. 302. **Emilia sonchifolia.**—Linn. Chin. pl. 144. Fl. hgk. 189. *Senecio sonchifolius*. Moench.

327. *Cineraria repanda*. . Canton. Sin : *cau li man* (九 里 明). 613.

D. C. VI. 363. **Senecio chinensis.**

328. *Gorteria setosa*. Linn. Canton. Lour. 620.

D. C. VI. 501. **Gorteria ? Loureiri.** Dubia.

329. **Xeranthemum chinense.** Lour. Canton. Sin : *siao louc ngi*. 608.

D. C. VI. 529. Stirps dubia.

330. *Carduus lanceolatus*. Linn. Canton. Sin : *la ti tsao, siao ky* (小 薊). Lour. 588.

D. C. VI. 629. **Carduus chinensis.** Stirps dubia.

331. *Carduus tuberosus*. Linn. Canton. Sin : *thu gin sen* (土 人 參). Lour. 589.

D. C. VI. 645. **Cirsium pratense.** Linn.'s plant is a native of **Europe.**

332. *Serratula multiflora*. Linn. Canton. Sin: *mu min fo*. Lour. 589.

D. C. VI. 675. Linn.'s plant is probably Jurinaea linearifolia. Siberia, Caucasus. Tauria.

333. **Serratula scordium.** Lour. China, Cochin. spont. cult. Sin: *tse lan* (澤 蘭). 590.

D. C. VI. 671. Dubia.

334. **Carthamus tinctorius.** Linn. China, Cochin. cult. Sin: *kum lan koa* (紅 藍 花). Lour. 587.

Largely cultivated in China.

335. *Tussilago Anandria*. Linn. China borealis. Sin: *lu chau koan tum koa* i.e. *koan tum koa* (款 冬 花) from *lu chau* (in the prov. of An hui.). Lour. 614.

D. C. VII. 40. Linn.'s plant is Anandria Bellidiastrum, var. autumnale. (Gerbera. G. Pl. II. 498.)

336. **Cichorium Endivia.** Linn. China boreal. Sin: *khu tsai* (苦 菜). Lour. 583.

D. C. VII. 84. Europa, India.

337. *Picris repens*. Lour. Canton. Sin: *hu hoam lien* (胡 黃 蓮). 583.

D. C. VII. 159. Barkhausia repens. Spr.—Hook. et Arn. bot. Beech. p. 194.—*Crepis repens*. G. Pl. II. 513.

338. *Leontodon sinense*. Lour. China. Sin: *pu cum tsao*. (蒲 公 草). 584.

D. C. VII. 150. Taraxacum sinense. Species non satis nota. In Peking *Leontodon taraxacum*, found also in Hongkong, bears the above Chinese name.

339. **Lactuca sativa.** Linn. Cochin. Macao. cult.—Sin: *ye tsai, kiu* (苣). Lour. 585.

The common Lettuce is cultivated throughout China.

340. *Sonchus floridanus*. Linn. Canton. Sin: *nieu li soi*. Lour. 586.

D. C. VII. 249. *Mulgedium floridum*. American spec.—G. Pl. II. 526. Lactuca florida.—According to Parker *Lactuca brevirostris* in Canton is 牛 脷 草 *niu li tsao*.

341. *Sonchus sibiricus*. Linn. Canton. Sin: *san tu* (山 荼.). Lour. 586.

D. C. VII. 219. *Mulgedium sibiricum*. Less. (Lactuca sibirica. G. Pl.). Sibiria.

342. *Lobelia chinensis*. Lour. Canton. Sin: *puen fuen lien*. 628.

Fl. hgk. 197. Lobelia trigona. Roxbg. var. glabra. Osb. 145.

343. **Enkianthus quinqueflora.** Lour. Canton. cult. Sin: *tsiao tsung hoa* (吊 鐘 花). 339.

Fl. hgk. 200.

344. **Enkianthus biflora.** Lour. Canton. Sin: *san lieo hoa.* Lour. 340.

345. *Thela alba.* Lour. China, Cochin. Sin: *pa hoa tan.* (白 花 [illegible]). 147.

D. C. XII. 692. **Plumbago ceylanica.** Linn.—Hce. Add. Fl. hgk. 111.

346. *Thela coccinea.* Lour. China, Cochin. Sin: *che hoa tan.* (赤 花 [illegible]). 147.

D. C. XII. 693. **Plumbago coccinea.** Boiss. Observed in Macao by Vachell.

347. **Primula sinensis.** Lour. In imper. Sinensi. Sin: *yu tsuan hoa.* 128.

Not to be confounded with *Pr. sinensis.* Lindl. D. C. VIII. 35. P. Sinensis Lindl. has lately been observed by Watters in the province of Hupeh. (Journ. Bot. 1880. p. 262).

348. **Sideroxylon cantoniense.** Lour. In suburb. Canton. Sin: *san cot* (山 欖). 151.

349. **Euclea herbacea.** Lour. Canton. Sin: *xe lin tsu.* 773.

D. C. VIII. 219. Species dubia.

350. *Ebenoxylum verum.* Lour. Cochin. Sin: *o mouc* (烏 木), *u muen mu* (烏 樠 木). 752.

Osb. 146. D. C. VIII. 242. **Maba Ebenus.** Spreng.

351. **Diospyros Kaki.** Linn. fil. China, Cochin. cult. Sin: *su xu* (柿 樹). Lour. 278.

Cultivated throughout China.

352. *Myrtus chinensis.* Lour. Canton. Sin: *tan quat xiong.* 382.

D. C. III. 242. Specim. Lour. in hb. Mus. Paris. **Symplocos sinica** Ker? China.

353. *Nyctanthes grandiflora.* Linn. China, Cochin. cult. Sin: *ta mo li* (大 茉 莉. Lour. 26.

D. C. VIII. 302. **Jasminum Sambac,** var. **trifoliatum** or 303. **Jasm. arborescens.** Roxbg. (Lour.'s plant, non Linn.). But according to Parker *Jasminum grandiflorum* is also cultivated in Canton.

354. *Nyctanthes Sambac.* Linn. In hortis Chinae et Cochin. Sin: *mo li hoa* (茉 梨 花). Lour 25.

D. C. VIII. 301. **Jasminum Sambac.** Ait.—Much cultivated in China.

355. **Jasminum officinale.** Linn. Canton. Sin: *su han hoa* (素 馨 花). Lour. 24.

Cultivated in South-China.—Hook. et Arn. bot. Beech. 197.

356. *Osmanthus fragrans.* Lour. In hortis Chinae, Cochin. Sin: *mo si hoa* (木 犀 花), *guei hoa* (桂 花). Lour. 35.

Olea fragrans. Thbg. Japan.—Osb. 149.—Cultivated throughout China, and also wild.

357. **Ligustrum sinense.** Lour. Canton. 23.

Fl. hgk. 215.—Decaisne Monogr. Ligustr. 36.—Introduced into Europe by Fortune. Gardener's Chron. 1878. 364.

358. **Vinca rosea.** Linn. China, Cochin. agrest. cult. Lour. 146.

Fl. hgk. 220.

359. *Plumeria obtusa.* Linn. China, Cochin. cult. Lour. 144.

D. C. VIII. 392. Lour.'s plant (non Linn.) **Plumeria acutifolia.** Poir. Southern Asia.

360. *Nerium Oleander*. Linn. China, Cochin. Lour. 141.

Hook. et Arn. bot. Beech. 199. Lour.'s plant is **Nerium odorum.** Linn.—Comp. Linn. Chin. pl. 150.

361. *Pergularia divaricata.* Lour. China. Sin: *hu muon.* 210.

D. C. VIII. 418. **Strophanthus divergens.** Grah.—Fl. hgk. 220.

362. **Apocynum alterniflorum.** Lour. Prope Cantonem. Sin: *fu muon than.* 209.

D. C. VIII. 440. Stirps dubia.

363. *Asclepias Curassavia.* Linn. Canton. Sin: *yong co lai* (羊 角 [illegible] Williams). Lour. 211.

D. C. VIII. 572. Lour.'s plant is **Toxocarpus Wightianus.** Hook. et Arn. bot. Beech. 200. But *Ascl. curassavia* has also been observed in South-China. Fl. hgk. 225. 224.

364. *Cynanchum inodorum.* Lour. Sin: *ti yong than.* 207.

D. C. VIII. 551. **Gymnema inodorum.**

365. *Cynanchum odoratissimum.* Lour. Canton. Cochin. cult. 206.

D. C. VIII. 618. **Pergularia odoratissima.** L.—Cultivated throughout China.

366. *Pergularia sinensis*. Lour. China. Sin: *fi si than.* 211.

Spreng. Syst. I. 836. **Periploca sinensis.**

367. *Stapelia chinensis.* Lour. Canton. Sin: *yong sau khau* (王 繡 球). 205.

D. C. VIII. 636. **Hoya carnosa.** R. Br.—Fl. hgk. 228.—Bridgm. Chrest. 454, 46.—Comp. also Maxim. Diagn. pl. nov. asiat. I. 822. **H. chinensis.** Traill.

368. **Buddleia asiatica.** Lour. Cochin. 90.

Fl. hgk 231.

369. *Gentiana aquatica.* Linn. Canton. Sin: *si kam siong.* Lour. 214.

D. C. IX. 108. Lour.'s plant is a new sp. **Gentiana Loureiri.** Giesel.

370. **Hydrolea inermis.** Lour. Canton. Sin: *siong fung.* 214.

371. *Varronia sinensis*. Lour. In var. locis imp. Sinensis. Sin: *san chu yu* (山茱萸). 171.

D. C. IX. 500. Cordia Loureiri. Roem. et Sch. Non satis nota.

372. **Heliotropium indicum.** Linn. Cochin. cult. Lour. 126.

Fl. hgk. 235.

373. *Anchusa officinalis*. Linn. In var. locis imp. Sinens. Sin: *tsu tsao* (紫草). Lour. 127.

D. C. X. 42. Europa.—The above Chinese name is applied in Japan to Lithospermum officinale. L. var. erythrorizon. Maxim. Dec. XI. 541. The Chinese plant of the same name (the roots of it are sold in Peking) is probably the same.

374. **Echium vulgare.** Linn. Lour. 125.

D. C. X. 18. Europa.—

375. **Argyreia arborea.** Lour. China, Cochin. spont. cult. Sin: *truong xuen hoa*. 167.

376 **Argyreia acuta.** Lour. In. Sinis. Sin: *pa ho than*. 167.

D. C. IX. 333. Specim. Lour. in hb. Mus. Britan.—Fl. hgk. 187.

377. **Ipomoea Quamoclit.** Linn. China, Cochin. cult. Sin: *kam peng sung*. (錦屏松). Lour. 137.

D. C. IX. 336. India orient. America.—Osb. 154.—Much cultivated in China. Bridgm. Chrest. 454. 52.

378. *Convolvulus Pes caprae*. Linn. China, Cochin. 134.

Osb. 155.—D. C. IX. 349. Ipomoea pes caprae. Sw.—Fl. hgk. 238.

379. *Convolvulus medium*. Linn. Cochin. Lour. 130.

D. C. IX. 353. Lour.'s plant is Ipomoea filicaulis. Bl—Fl. hgk. 238.

380. *Convolvulus reptans*. Linn. China, Cochin. locis aquosis. Lour. 133.

D. C. IX. 349. Ipomoea reptans. Poir.—Oso.158.—Cultivated throughout China.

381. *Convolvulus Batatas*. Linn. Tubera esculenta. India, China, Cochin. Sin: *hoan xy* (紅薯). Lour. 131.

D. C. IX. 338. Batatas edulis. Chois.—G. Pl. II. 872. *Ipomoea Batatas.*—Osb. 152.—Cultivated throughout China.

382. *Convolvulus obscurus*. Linn.? China, Cochin. Sin: *ca phan xy*. Lour. 131.

D. C. IX. 370. Ipomoea obscura. Ker.—Add. fl. hgk. 118.

383. *Convolvulus tomentosus*. Linn. China, Cochin. Sin: *khien nieu* (牽牛). Lour. 133.

D. C. IX. 428. Linn.'s plant (non Lour.) Pharbitis tomentosa. Chois.—G. Pl. II. 871. *Ipomoea tomentosa.*—In Peking the above Chinese name is applied to *Pharbitis triloba*. Chois.—Osb. 157?

384. **Solanum Melongena.** Linn. China, Cochin. Sin: *kie tsu* (茄 子). Lour. 161.

Osb. 160.—Largely cultivated in China.

385. **Solanum aethiopicum.** Linn. China, Cochin. cult. Lour. 160.

D. C. XIII. 1. 351. Lour.'s plant is *S. aethiopicum*, var. *violaceum.*—Linn. Chin. 161.

386. **Solanum lycopersicum.** Linn. Cochin. Lour. 161.

Cultivated in Peking.

387. **Solanum nigrum.** Linn. Cochin. Lour. 160.

Fl. hgk. 242.—Frequent in North-China.

388. **Solanum biflorum.** Lour. China, Cochin. Sin: *thien phao* (天 泡). 159.

Osb. 163.—Fl. hgk. 242.—Add. Fl. hgk. 242.

389. **Solanum indicum.** Linn. Cochin. Lour. 162.

Osb. 162.—Fl. hgk. 242.

390. **Solanum dichotomum.** Lour. Canton: *kam ngi van*. 160.

391. **Physalis Alkekengi**. Linn. China, Cochin. Sin: *soan tsiam* (酸 漿). Lour. 164.

D. C. XIII. i. 438. Europa, China.—Common in North-China.

392. **Physalis angulata.** Linn. Cochin. Lour. 164.

Fl. hgk. 244.

393. **Capsicum annuum.** Linn. Cult. China, Cochin. Lour. 157.

Much cultivated in China.

394. **Capsicum baccatum.** Linn. Cult. China, Coch. Lour. 157.

D. C. XIII. i. 420. India, America.

395. **Capsicum frutescens.** Linn. China, Cochin. cult. Sin: *lat tsiao* (辣 椒). Lour. 158.

Osb. 164.

396. *Lycium barbarum*. Linn. Canton. Sin: *keu ki* (枸 杞). Lour. 165.

D. C. XIII. 1. 510. Lour's plant is **Lycium chinense.** Mill.—Osb. 165.—Fl. hgk. 245.

397. **Datura Metel.** Linn. China, Cochin. Sin: *nao kien hoa* (閙 陽 花). Lour. 135.

The above Chin. name is applied in Canton to *Datura alba*. Nees. (Parker.)

398. **Nicotiana fruticosa.** Linn. China. Cochin. Sin: *yen ye* (煙 葉). Lour. 136.

Osb. 168.

399. *Antirrhinum Linaria* Linn. Canton. Sin.: *soy kue hoa.* Lour. 465.

D. C. X. 273. Linaria vulgaris. Mill. Europa, Asia bor.—Also in North-China.

400. *Antirrhinum spurium*. Linn. Canton. Lour. 465.

D. C. X. 268. Linaria spuria. Mill. Europa, Asia occid.

401. **Mazus rugosus.** Lour. Cochin. 468.

Fl. hongk. 247.—Also in North-China.

402. *Digitalis sinensis*. Lour. 459.

D. C. X. 380. Pterostigma grandiflorum. Benth.?—G. Pl. II. 449 Adenosma grandiflorum.—Osb. 170.—Fl. hgk. 247.

403. *Septas repens*. Lour. Canton. Sin: *pa tsi hien* (巴戟天). 477.

D. C. X. 400. Herpestis Monnieria. Humb. B. —Fl. hgk. 249.

404. **Gratiola hyssopioides**? Linn. Canton. Sin: *pi pa tsao*. Lour. 27.

D. C. X. 415. India.

405. *Picria Fel terrae*. Lour. China, Cochin. cult. Lour. 478.

G. Pl. II. 954. Specim. Lour. in hb. Mus. Brit. Curangae Species?

406. *Ruellia antipoda*. Linn. Cochin. Lour. 462.

Osb. 174.——D. C. XI. 155. Bonnaya veronicaefolia. Spreng. Fl. hgk. 252.

407. **Scoparia dulcis.** Linn. Cochin. Lour. 89.

Fl. hgk. 252.

408. *Striga lutea*. Lour. Canton. Sin: *thoc chio kam* (獨腳金. Parker.). 27.

Fl. hgk. 254. Striga hirsuta. Bth.—D. C. X. 502.

409. *Campsis adrepens*. Lour. In sylvis prov. Canton. Sin: *lien sieu* (陵霄). 458.

D. C. IX. 223. Tecoma grandiflora. Delaun.—Loureiro in stating that this plant has bipinnate leaves, commits the same error as with respect to *Sophora japonica*. (166 above.)

410. **Sesamum orientale.** Linn. China, Cochin. Sin: *ma chi* (麻脂). Lour. 464.

Largely cultivated in China.

411. *Acanthus ilicifolius*. Linn. China, Cochin. Sin: *lao chu lao* (老鼠竻). Lour. 455.

D. C. XI. 269. Lour.'s plant Dilivaria ebracteata. Juss.? India orient.

412. **Barleria procumbens.** Lour. Canton. Sin: *kam hua tsu* 458.

D. C. XI. 243. Incertae sedis.

413. *Justicia chinensis*. Linn. Cochin. Lour. 30.

Linn. Chin. pl. 183.—Fl. hgk. 266. Dicliptera chinensis. Nees.

414. *Justicia purpurea.* Linn. Canton. Sin: *chí chap hoa.* Lour. 31.

Osb. 181.—D. C. XI. 498. Peristrophe tinctoria. Nees.—Journ. bot. 1879. 12. Hainan (Hance). Observed also near Kiukiang.

415. **Dissolena verticillata.** Lour. Provincia Canton. Sin: *mat sa.* 171.

D. C. VIII. 318. *Verbenaceæ.*

416. *Phyla chinensis.* Lour. Sin: *lien fuen.* 83.

D. C. XVII. 296. *Verbena nodiflora.* Linn. Lippia nodiflora. Rich. Osb. 184.

417. **Verbena officinalis.** Linn. China, Cochin. Sin: *ma pien tsao* (馬 鞭 草 Parker.). Lour. 33.

Fl. hgk. 268.

418. *Porphyra dichotoma.* Lour. Canton. Sin: *tsu hoa uon* 87.

D. C. XI. 645 Callicarpa purpurea. Juss. China, Japan.

419. **Vitex Negundo.** Linn. China, Cochin. Sin: *muen kim* (蔓 荊). Lour. 474.

Osb. 185.—Fl. hgk. 272.

420. **Vitex trifolia.** Linn. China, Cochin. Lour. 474.

Fl. hgk. 272.—D. C. XI. 683. Collected near Canton by Millet and Vachell.

421. **Vitex spicata.** Lour. China, Cochin. Sin: *u chu kim.* 475.

D. C. XI. 696. Dubia.

422. *Cornutia quinata.* Lour. Canton. Sin: *u si kam* (五 指 金). 470.

Fl. hgk. 273. Vitex Loureiri. Hook. et Arn. bot. Beech. 206.—The above Chin. name is applied in Canton also to *V. Negundo.* (Parker.)

423. **Clerodendron infortunatum.** Linn. Canton. Sin: *fung mi chu.* Lour. 471.

D. C. XI. 667. India orientalis.

424. *Volkameria Petasites.* Lour. Cochin. 473.

D. C. XI. 657. Clerodendron infortunatum. Linn.

425. *Volkameria inermis.* Linn. Canton. Sin: *san fu mun.* Lour. 471.

D. C. XI. 660. Clerodendron inerme. R. Br.—Osb. 187.—Fl. hgk. 271.

426. *Volkameria pumila.* Lour. Canton. Sin: *san tang lung* (山 當 龍). 472.

D. C. XI. 674. Clerodendron pumilum. Spreng.

427. *Barbula sinensis.* Lour. Canton. Sin: *sat song kim* 445.

Fl. hgk. 269. Caryopteris mastacanthus. Schau.—D. C. XI. 625.

428. **Ocimum Basilicum.** Linn. Cochin. cult. Lour. 449.

Much cultivated in China.

429. *Dentitia nankinensis.* Lour. Nanking. Canton. Sin: *kiam nan tsu su* (江 南 紫 蘇). 448.

Fl. hgk. 276. Perilla ocymoides. L. var. crispa.

430. **Mentha pulegium.** Linn. China, Cochin. Sin: *po ho* (薄 荷). Lour. 437.

Lour.'s plant is probably *Mentha arvensis. L. (M. javanica* Bl). Fl. hgk. 276. The above Chin. name is applied in Peking to *M. arvensis*, var. *sativa.*

431. **Mentha hirsuta.** Linn. China, Cochin. Sin: *hiam tsao* (香 草). Lour. 437.

D. C. XII. 170. European spec.

432. **Mentha crispa.** Linn. China, Cochin. Lour. 437.

D. C. XII. 170, Europa.

433. *Origanum creticum.* Linn. Canton. Sin: *Quam tum kim kiai.* Lour. 453.

D. C. XII. 193. Origanum vulgare. L. var. prismaticum. Europa.

434. *Origanum heracleoticum.* Linn. China, Cochin. Lour. 453.

D. C. XII. 194. Linn.'s plant is dubious. O. hirtum. Link? Europa.

435. **Origanum Majorana.** Linn. China. Cochin. raro. Lour. 454.

D. C. XII. 195. 196. Ind. orient.

436. **Origanum Dictamnus.** Linn. Canton. Sin: *quam tum fam fum* (廣 東 防 風). Lour. 452.

D. C. XII. 191. Europa.

437. *Melissa cretica.* Linn. China, Cochin. cult. Sin: *tsu su* (紫 蘇). Lour. 446.

D. C. XII. 227. Calamintha cretica. Benth. Creta.—In Peking the above Chin. name is applied to *Perilla ocymoides.* L.

438. **Rosmarinus officinalis.** Linn. China, Cochin. cult. Sin: *yong tsao.* Lour. 34.

D. C. XII. 360. Europa. Oriens.

439. **Betonica officinalis.** Linn? China, Cochin. cult. Sin: *ho hiam* (藿 香) Lour. 441.

D. C. XII. 460. Europa. Asia bor.—In Peking the above Chinese name is applied to *Lophanthus rugosus.* Fisch.

440. *Stachys Artemisia.* Lour. China, Cochin. Sin: *ke hoei, sung uy.* Lour. 443.

D. C. XII. 501. Leonurus sibiricus. Linn.—Linn. Chin. pl. 194. Fl. hgk. 278.

441. **Lamium garganicum.** Linn. China, Cochin. Sin: *hi kiem tsao.* Lour. 442.

D. C. XII. 504. Europa.

442. **Teucrium Polium.** Linn. Canton. Sin : *ti tam tsao.* Lour. 439.

D. C. XII. 591. Europa, Africa, Asia occid.

443. **Ajuga reptans.** Linn. Canton. Lour. 441.

D. C. XII. 595. Europa. Asia occid.

444. **Plantago major.** Linn. Ad vias. China, Cochin. Sin : *che tsien ts'ao* (車 前 草). Lour. 90.

Fl. hgk. 280.—Linn. Chin. 195—Roem. et Sch. syst. III. 112. consider Lour.'s plant a new spec : *P. Loureiri.*

445. **Campylus sinensis.** Lour. Canton, in collibus nemorosis. Sin : *xeng con than.* Lour. 140.

D. C. XVII. 291. Corolliflora incertae sedis.

446. **Callicarpa triloba.** Lour. China, Cochin. Sin : *ca fu thay* 89.

D. C. XI. 647. Dubia.

447. **Mirabilis Jalappa.** Linn. China, Cochin. Sin : *jen chi hoa* (胭 脂 花). Lour. 123.

Osb. 196.

448. **Boerhavia diffusa.** Linn. Canton. Sin : *koung si sin* Lour. 20.

Fl. hgk. 281. Canton.

449. **Celosia argentea.** Linn. China, Cochin. cult. agr. Sin : *tsim siam tsu* (青 葙 子. Lour. 203.

Osb. 198.—Fl. hgk. 284.

450. **Celosia margaritacea.** Linn. Cochin. in China cult. Sin : *hia khu tsao* (夏 枯 草). Lour. 203.

D. C. XIII. 2. 243. *C. argentea,* var. *margar.*

451. *Celosia castrensis* Linn. China, Cochin. cult. Sin : *ki koan hoa* (鷄 冠 花). Lour. 202.

Osb. 199.—Fl. hgk. 284.—D. C. XIII. 2. 242. Celosia cristata. var castrensis.

452. **Amaranthus tristis.** Linn. China, Cochin. esculenta. Lour. 686.

Osb. 201.

453. **Amaranthus spinosus.** Linn. Cochin. spont. cult. Lour. 687.

Fl. hgk. 285.

454. **Amaranthus cruentus.** Linn. China, Cochin. cult. Lour. 687.

Osb. 200.

455. **Amaranthus tricolor.** Linn. China, Cochin. cult. Sin : *hum hien* (紅 莧). Lour. 685.

Frequently cultivated in China.

456. *Amaranthus polygamus.* Linn. China, Cochin. cult. spont. Sin: *pe hien* (白 莧). Lour. 685.

D. C. XIII. 2. 272. Euxolus polygamus. Mocq. Aegyptus, Amboina.

457. *Cyathula geniculata.* Lour. Cochinchina, China? Sin: *nieu si* (牛 膝). Lour. 124.

D. C. XIII. 2. 226. Cyathula prostrata. Bl. Macao (Callery). Fl. hgk. 285.

458. *Illecebrum sessile.* Linn. Canton. Sin: *fan ti kouo* ([illegible] [illegible] [illegible] Parker.). Lour. 202.

D. C. XIII. 2. 357. Alternanthera sessilis. R. Br. China. (Staunton). Fl. hgk. 285.

459. **Gomphrena globosa.** Linn. China, Cochin. cult. Lour. 218.

Osb. 205.—D. C. XIII. 2. 409. China (Loolanch.).—Cultivated in Peking.

460. **Beta vulgaris.** Linn. Canton cult. Sin: *pa hung.* Lour. 217.

Much cultivated in Peking and other parts of China.

461. **Spinacia oleracea.** Linn. Canton, cult. Lour. 757.

Osb. 206.—Cultivated throughout China.

462. **Basella nigra.** Lour. China, Coch. agrest. cult. Sin: *lo quei* (落 葵). 229.

Willdenow thinks, that this is *Basella rubra.* Linn. But D. C. XIII. 2. 223. retains Lour.'s spec. as distinct.

463. *Lagunea cochinchinensis.* Lour. China, Cochin. Sin: *pa sia.* Lour. 272.

D. C. XIV. 123. Polygonum orientale. Linn.—Osb. 211.—Fl. hgk. 288.

464. **Polygonum chinense.** Linn. Canton. Sin: *fo than mu.* (火 炭 毛 Parker). Lour. 297.

Osb. 212.—Fl. hgk. 289.

465. **Polygonum barbatum.** Linn. China, Canton. Sin: *leao si* (蓼 ?), *hung hoang seng.* Lour. 296.

Osb. 210—Fl. hgk. 288.

466. **Polygonum tinctorium.** Lour. Canton. Sin: *hq lam* (小 藍). 297.

Act. hort. Kew. 2d ed. II. 418. Introduced into England from China, in 1776.—Cultivated in North-China

467. *Polygonum hydropiper.* Linn. China, Cochin. Sin: *suei leao* (水 蓼). Lour. 295.

D. C. XIV. 107. Polygonum flaccidum? (Lour.'s plant.). But P. hydropiper is found in Hongkong. Fl. hgk. 288.

468. **Polygonum ciliatum.** Lour. Canton. Sin: *ho san kio.* 299.

D. C. XIV. 102. Species obscura.

469. **Polygonum perfoliatum.** Linn. Cochin. Lour. 298.
Fl. hgk. 289.

470. *Polygonum aviculare*. Linn. China, Cochin. Sin: *vien suc* (萹 蓄). Lour. 297.

D. C. XIV. 98. *Pol. Roxburghii.* var.—Fl. hgk. 287. **Pol. plebejum.** Br.

471. **Polygonum tataricum.** Linn. Canton. Sin: *tam co mac* (? 蕎 麥). Lour. 298.

D. C. XIV. 144. Tataria, Sibiria. Nepal.—Found also in North-China.

472. **Rheum palmatum.** Linn. China borealis. Sin: *ta hoam* (大 黃). Lour. 313.

Lin. Chin. pl. 213.

473. *Rheum Rhabarbarum*. Linn. In multis locis imp. Sin. colitur. Sin: *ta hoam*. Lour. 314.

Rheum undulatum. Linn. Chin. pl. 214.

474. *Rumex crispus*. Linn. Cochin. Lour. 269.

D. C. XIV. 60. Lour.'s plant is **Rumex chinensis.** Campd. Gathered in China by Staunton, Beechey, Millet.—Add. Fl. hgk. 117.

475. *Asarum virginianum*. Linn. In variis Sinarum provinciis. Sin: *Si sin* (細 辛). Lour. 357.

Lour. quotes Thbg. Japan. Thbg.'s Asar. virg. is **Asarum Thunbergii.** Al. Braun. D. C. XV. 1. 427.

476. *Spathium chinense*. Lour. Canton. Sin: *thong pin ngau*. Lour. 270.

Hook. et Arn. bot. Beech. 216 identify it with *Saururus cernuus*. L. S. China,—Decaisne (D. C. XVI. 1. 239.) makes a new spec. **Saururus Loureiri.**

477. *Polypara cochinchinensis*. Lour. Cochin. cult. Lour. 78.

D. C. XVI. 1. 238. **Houttuynia cordata.** Thbg.—Fl. hgk. 334.

478. **Piper nigrum.** Linn. Cochin. Sin: *hu tsiao* (胡 椒). Lour. 37.

479. **Piper Betle.** Linn. Sin: *lau yep* (蔞 葉). Lour. 39.
Osb. 216.

480. **Piper longum.** Linn. Sin: *pi po* (蓽 撥). Lour. 40.

481. *Oreodus odorifer*. Lour. Cochin. cult. 112.

D. C. XVI. 1. 474. **Chloranthus inconspicuus.** Sw. ?—Fl. hgk. 334.

482. *Laurus Camphora*. Linn. China. Japan. Sin: *lum nao hiam* (龍 腦 香). Lour. 306.

Osb. 217.—D. C. XV. 1. 24. **Cinnamomum Camphora.** Nees. China (Staunton).

483. *Laurus Cinnamomum*. Linn. Cochin. Sin: *kuei xu* (桂 樹). Lour. 305.

D. C. XV. 1. 16. Lour.'s plant is **Cinnamomum Loureiri.** Nees. Found also in Japan.

484. *Sebifera glutinosa*. Lour. China, Cochin. Sin: *cien kam su*. Lour. 783.

D. C. XV. 1. 178. Tetranthera laurifolia. Jacq. *Litsaea chinensis* Lam.—Fl. hgk. 293. *Tetranthera citrifolia*.—Add. Fl. hgk. 119.

485. *Glabraria Tersa*. Linn. Cochin. Lour. 576.

D. C. XV. 1. 179. Tetranthera laurifolia. var. citrifolia.—Fl. hgk. 293.—Add. Fl. hgk. 119.

486. *Laurus Cubeba*. Lour. China, Cochin. cult. 310.

D. C. XV. 1. 199. *Tetranthera? Cubeba*.—Daphnidium Cubeba. Nees.

487. *Laurus Sassafras*. Linn. Prope Tunkin. Sin: *hoam cham* (黃樟). Lour. 312.

D. C. XV. 1. 246. Lindera? Loureiri. Bl. Species dubia.

488. *Laurus Myrrha*. Lour. Cochin. Sin: *u yo* (烏藥). 308.

D. C. XVI. 1. 230. Daphnidium Myrrha. Nees.—G. Pl. III. 163. *Lindera Myrrha*.

489. *Calodium cochinchinense*. Lour. Cochin. China? 303.

Willdenow thinks, that it may be Cassyta filiformis. L.—Osb. 218.—Fl. hgk. 294.

490. **Helicia cochinchinensis.** Lour. Cochin. 105.

Fl. hgk. 295.

491. *Daphne odora*. Linn. Canton. cult. Sin: *nhuc moi, nun muei*. Lour. 292.

D. C. XIV. 537. Lour.'s plant: Daphne sinensis. Lam. Has been cultivated in Paris.

492. **Daphne triflora.** Lour. Canton. Sin: *u si seng*. 291.

D. C. XIV. 541. 537. (D. *japonica*).

493. *Daphne cannabina*. Lour. Cochin. 291.

D. C. XIV. 543. Wickstroemia viridiflora. Meissn. Specim. Lour. in hb. Mus. Paris.—Fl. hgk. 297.

494. *Daphne indica*. Linn. Nanking, Canton. Sin: *lu ha sin*. Lour. 292.

D. C. XIV. 543. Wickstroemia indica. C. A. Mey. China (Vachell).—Osb. 219.

495. *Ophispermum sinense*. Lour. Sin: *pa mou yong*. 344.

G. Pl. III. 200. Aquilariae spec.

496. *Elaeagnus latifolia*. Linn. Canton. Sin: *pa poi tsu*. Lour. 113.

D. C. XIV. 613. Elaegnus Loureiri. Champ.—Fl. hgk. 298.

497. **Santalum album.** Linn. South-Cochinchina. Sin: *tan yam*. (檀香). Lour. 109.

D. C. XIV. 683. India, Indian Archipelago.

498. **Euphorbia nereifolia.** Linn. Cochin. Lour. 366.

Osb. 222.—D. C. XV. 2. 79. Ceylon.

499. **Euphorbia Tirucalli.** Linn. Cochin. Lour. 366.

Fl. hgk. 301.

500. **Buxus sempervirens.** Linn. China, Cochin. Sin: *huam tuon.* Lour. 678.

Fl. hgk. 315. *B. sempervirens.* But Hance Add. Fl. hgk. 123 considers this a new spec: *Buxus Harlandi.*

501. *Clutia monoica.* Lour. Canton. Sin: *sun ti fum.* 784.

D. C. XV. 2. 508. Cleistanthus monoicus.—Hook. et Arn. bot. Beech. 211.—Species incomplete nota.

502. **Phyllanthus Emblica.** Linn. China. Cochin. Sin: *hac min san* (黑面神). Lour. 677.

D. C. XV. 2. 352. India orient., China (Staunton), Japan.—Fl. hgk. 312.—The above Chin. name = *Melanthesa chinensis* in Canton. (Parker). Also *Phyllanthus obscurus.*

503. *Nymphanthus chinensis.* Lour. Canton. Sin: *siong chu tsao* (珍珠草). 664.

D. C. XV. 2. 433. Phyllanthus villosus. Poir. China (Sonnerat.) In Canton the above Chin. name = *Phyll. urinaria* (Parker.).

504. *Nymphanthus Niruri.* Lour. Cochin. 665.

D. C. l. c. 406. Phyllanthus Niruri. Müll. (Specim. Lour. in hb. Mus. Lond.).—Fl. hgk. 311.

505. **Phyllanthus urinaria.** Linn. Canton, Cochin. Sin: *fi yong tsao* (飛揚草). Lour. 677.

D. C. l. c. 364. Müller refers, evidently by a mistake, Lour.'s Ph. Niruri both to Ph. Niruri and to Ph. urinaria, which however he describes as distinct species.—Fl. hgk. 310.—The above Chin. name in Canton *Euphorbia pilulifera* L. (Parker.).

506. *Cathetus fasciculata.* Lour. Cochin. 746.

D. C. l. c. 350. Phyllanthus fasciculatus. Müll. (Lour. specim. in hb. Mus. Lond.). Fl. hg. 311.

507. **Antidesma scandens.** Lour. Canton. Sin: *u chao lum* (五爪龍). 757.

D. C. l. c. 268. Dubia.

508. *Vernicia montana.* Lour. Cochin. China. Sin: *tong xu* (桐樹). 721.

D. C. l. c. 724. Aleurites cordata. Müll. China (Gaudich.), Japan (Kaempfer). *Elaeococca vernicia.* Adr. Juss.

509. *Juglans Camirium.* Lour. Cochin. cult. spont. 702.

D. C. l. c. 723. Aleurites triloba. Forst. China (in hb. Lambert.), Philippin., Ind. orient.

510. **Croton Tiglium.** Linn. China, Cochin. Sin: *pa teu* (巴豆). Lour. 714.

D. C. l. c. 600. India, Ceylon, Philipp.

511. **Croton aromaticum.** Linn. Canton. Sin: *pa teu yong* (巴豆香)

D. C. l. c. 588. India orient.

512. **Croton congestum.** Lour. Canton. Sin: *pa tou* (巴豆). 714.

513. *Tridesmis tomentosa.* Lour. Canton. Sin: *ca ai ma* 707.

D. C. l. c. 588. *Croton tomentosus.* Müll. Croton crassifolium. Geisel. *Croton chinense.* Bth. Fl. hgk. 309, (specim. in hb. Mus. Paris.) Osb. 226.

514. *Tridesmis hispida.* Lour. Canton. Sin: *ki quat yong.* 706.

D. C. l. c. 1256. Species Crotonis.

515. *Phyllaurea Codiaeum.* Lour. China, Cochin. cult. 705.

D. C. l. c. 1120. Codiaeum variegatum. Linn. Ins. Molucc.

516. *Jatropha Janipha.* Linn. China. Sin: *pe fu tsu* (白附子). Lour. 718.

D. C. l. c. 1073. Lour.'s plant is Manihot Loureiri. Pohl.

517. *Urtica gemina.* Lour. Cochin. 682.

D. C. l. c. 866. Acalypha gemina. Spreng. *A chinensis* Roxb.—Hook. et Arn. bot. Beech. 212.— Also in N. China.

518. *Ricinus apelta.* Lour. Canton. Sin: *san pe su.* 718.

D. C. l. c. 963. Mallotus apelta. Müll.—*Rottlera chinensis.* Adr. Juss. (specim. Lour. in hb. Mus. Paris.). Fl. hgk. 306.

519. **Ricinus communis.** Linn. China, Cochin. cult. incult. Sin: *pi ma* (蓖麻). Lour. 716.

Fl. hgk. 307.—Cultivated throughout China.

520. *Triadica sinensis.* Lour. Canton. Sin: *u khau mo* (烏桕木). 749.

D. C. l. c. 1210. Excoecaria sebifera. Müll. Stillingia sebifera. Mich.—Osb. 227.—Fl. hgk. 302.

521. **Excoecaria cochinchinensis.** Lour. cult. China, Cochin. 750.

D. C. l. c. 1215. Ceylon, India orient., China. Specim. Lour. in hb. Mus. Lond.

522. *Commia cochinchinensis.* Lour. Cochin. 743.

D. C. l. c. 1220. Excoecaria Agallocha. Müll. Ind. orient., Philipp., Nov. Holland. (Specim. Lour. in hb. Mus. Lond.)

523. **Cannabis sativa.** Linn. China. Sin: *ma fuen* (麻賁). Lour. 756.

Frequent in North-China and also in other parts of the Empire.

524. *Streblus cordatus.* Lour. Canton. Sin: *tsong su.* 755.

D. C. XVII. 219. Broussonetia papyrifera. Vent.

525. **Morus alba.** Linn. China, raro in Cochin. Sin: *sin pe su* Lour. 678.

Linn. Chin. pl. 231.—Cleyer med. Sin. 290. *Cortex Mori sam pe pi* (桑白皮). This resembles somewhat the Chinese name quoted by Lour.

526. *Morus rubra.* Linn. Cochin. apud Mojos populos. Lour. 679.

D. C. XVII. Lour.'s plant is **Morus alba var. atropurpurea.** Bur. *Morus atropurpurea.* Roxb. Introduced into India from China.

527. *Morus indica.* Linn. Cochin. cult. Lour. 679.

D. C. l. c. 243. **Morus alba, var. indica.** Bur. Observed near Canton by Hedde. Also in Formosa. Cultivated in India.

528. **Dorstenia chinensis.** Lour. Prov. (boreal.) imp. Sinens. Sin : *pe chi* (白芷). 114.

D. C. XVII. 277. Dubia.

529. **Ficus carica.** Linn. Culta China, raro Cochin. Sin : *mao hoa qua* (無花果). Lour. 816.

Cultivated throughout China.

530. **Ficus Benjamina.** Linn. Cochin. Lour. 818.

Osb. 229 ?

531. **Ficus pumila.** Linn. Cochin. Lour. 820.

Linn. Chin. pl. 230.

532. *Polyphema Jaca.* Lour. Cochin. freq. cult. China raro. Sin : *ya xu, po lo mat* (波羅蜜). 667.

Artocarpus integrifolia. Linn. Comp. above Boym, Flora sin. 13. Swinhoe saw the tree cultivated in Hainan.

533. *Vanieria chinensis.* Lour. Provincia Canton. Sin : *hung hoang xiong.* 691.

G. Pl. III. 351. **Cudrania ?** vel **Plecospermum ?**

534. *Urtica interrupta.* Linn. China, Cochin. Sin : *tam ma* Lour. 682.

D. C. XVI. 1. 74. **Fleurya interrupta.** Gaudich. India.

535. *Polychroa repens.* Lour. China, Cochin. cult. incult. 684.

G. Pl. III. 386. **Pellionia brevifolia.** Bth. Fl. hgk. 330 ?

536. *Urtica nivea.* Linn. China, Cochin. cult. Sin : *pa ma.* Lour. 683.

D. C. XVI. 1. 206. 207. **Boehmeria nivea.** Hook. et Arn. Osb. 252. Fl. hgk. 331.—Sin : (苧麻) *ch'u ma.*

537. *Parietaria cochinchinensis.* Lour. China, Cochin. Sin : *mao soi cot* (霧水葛). 804.

D. C. l. c. 220. **Pouzolzia indica.** Gaudich. var. *alienata,* Wedell.

538. **Juglans regia.** Linn. China borealis. Sin : *ho tao* (核桃). Lour. 702.

Much cultivated in North-China.

539. *Morella rubra.* Lour. China, cult. Cochin. agrest. Sin : *yam muei* (楊梅). 670.

G. Pl. III. 401. **Myrica sapida.** Wall species in India orient. Chinaque frequens sylvestris vel culta.—Fl. hgk. 322. *Myrica rubra.* Sieb. et Zucc. Very near to M. sapida.

540. **Quercus cornea.** Lour. China, Cochin. Sin: *chu* (茅). 700.

Flor. hgk. 322.

541. *Fagus Castanea.* Linn. Cochin. sylvestris, China colit. Sin: *lie tsu* (栗子). Lour. 699.

D. C. XVI. 2. 116. *Castanea chinensis.* Spreng.—**Castanopsis chinensis.** Hance. Journ. Linn. Soc. X. 199. He gathered this species in the Canton province.—According to D.C. XVI. 2. 116. Loureiro's *Fagus cochinchinensis* belongs to the same species.

542. **Salix babylonica.** Linn. Frequens China, colit. Cochin. Sin: *lieu xu.* (柳樹). Lour. 747.

A common tree in North-China.

543. *Juniperus barbadensis.* Linn. China. Lour. 781 and **J. chinensis.** Linn. ibid.

D. C. XVI. 2. 488. Both of these Loureirian plants are referred to *J. chinensis.* L.—D. C. quotes Hance ins. Hongkong (not found in Add. fl. hgk.).

544. **Thuja orientalis.** Linn. China, Cochin. raro colit. Lour. 712.

Osb. 233.—Cultivated throughout China. *Biota orientalis.* Endl.

545. **Cupressus sempervirens.** Linn. China spont. Cochin. cult. Sin: *pe xu* (栢樹). Lour. 711.

D. C. l. c. 468. Not quoted for China. In Peking the above Chin. name is applied to *Biota orientalis.*

546. *Cupressus thuyoides.* Linn. China, Cochin. Lour. 711.

D. C. l. c. 464. **Chamaecyparis sphaeroidea.** Spach. American plant.

547. *Pinus Abies.* Linn. China australis. Sin: *xan mo* (杉木). Lour. 710.

D. C. l. c. 432. **Cunninghamia sinensis.** R. Br.—Osb 235.—Fl. hgk. 337.

548. *Pinus sylvestris.* Linn. China, Cochin. Sin: *sum* (松). Lour. 709.

D. C. l. c. 389. **Pinus Massoniana.** Lamb. **P. sinensis.** Lamb. Fl. hgk. 337.—Add fl. hgk. 125. A common tree in all parts of China.

549 **Cycas inermis.** Lour. China, Cochin. spont. cult. 776.

D. C. l. c. 526. Culta in hort. Amstelod.

MONOCOTYLEDONS.

550. *Musa seminifera.* Lour. Cochin. cult. spont. Lour. 791.
Musa odorata. Lour. Cochin. cult. Lour. 791.
Musa nana. Lour. Cochin. 791.
Musa corniculata. Lour. Cochin. 791.

Desvaux in Journ. d. Bot. 1814 considers all these species only varieties of **Musa sapientum.** L.—Fl. hgk. 348.—Osb. 237.

551. *Musa uranoscopos*. Lour. Cochin. 792.
Bot. Mag. tab. 1559. (1813). Musa. coccinea. Andr. introduced into Europe, from China, in 1792.

552. **Canna indica.** Linn. China, Cochin. Sin : *san kiam* (山 薑). Lour. 13.
Osb. 239.—Fl. hgk. 349.

553. *Phyllodes placentaria.* Lour. China, Cochin. Sin : *toung yep* (冬 葉). 17.
Roem. et Schult. Syst. I 18. Phrynium capitatum. Willd. (Malabar, China).

554. *Amomum Galanga.* Lour. China, Cochin. cult. et agrest. Sin : *cao leam kiam* (高 良 薑). Lour. 7.
Maranta Galanga. Linn. *Galanga major.* Rumph.—Linn. Chin pl. 240.—Fl. hgk. 348. Alpinia Galanga. Sw.

555. **Amomum medium.** Lour. Provincia Yunnan imp. Sinensis. Sin : *tsao quo* (草 菓). 5.
Hanbury Science pap. 105. *Chinese ovoid Cardamom.* Known only from its fruits it seems.

556. **Amomum globosum.** Lour. In montibus Chinae et Cochin. Sin : *tsao keu* (草 豆 蔻). 6.
Hanbury, Science pap. 95. *Large round Chin. Cardamom.* The plant is unknown to modern botanists.

557. **Kaempferia Galanga.** Linn. In hortis Chinae et Cochin. Sin : *san lay* (三 賴). Lour. 15.
Roem. et Sch. Syst I. 27. India orient.

558. *Curcuma rotunda.* Linn. China, Cochin. frequens. Sin : *pum ngo meu* (蓬 莪 茂). Lour. 11.
Spreng. Syst. I. 10. Kaempferia pandurata. Roxbg. Sumatra.

559. **Curcuma longa.** Linn. Cochin. culta, inculta. Sin : *kiam hoam* (薑 黃). Lour. 11.
Flückiger and Hanbury, Pharmacographia. 577 :] One sort of the Turmeric of commerce is China Turmeric.

560. **Curcuma pallida.** Lour. Cochin. Canton. Sin : *san kiam hoam* (山 薑 黃). 12.

561. *Amomum Zingiber.* Linn. China, Cochin. cult. Sin : *sem kiam* (生 薑). Lour. 2.
Spreng. Syst. I. 12. Zingiber officinale. Rosc. India.—Without any doubt a native of China.

562. *Aristotelea spiralis.* Lour. Canton. Sin : *hoan lum.* 638.
Spreng. Syst. III. 708. *Spiranthes amoena.* M. B., which according to Ledebour Fl. ross. IV. 184. is Spiranthes australis. Lindl.—Fl. hgk. 360.

563. *Orchis Susannae.* Linn. Canton. Sin : *ma chac lan,* Lour. 638.
Habenaria Susannae. R. Br.—Fl. hgk. 363.

564. **Aërides odorata.** Lour. China, Cochin. Sin: *fum lan* (風 蘭). 642.

According to Loudon introduced into Europe in 1800.

565. *Epidendron ensifolium.* Linn. China, Cochin. cult. Sin: *lan hoa* (蘭 花). Lour. 640.

Osb. 242.—Fl. hgk. 357. **Cymbidium ensifolium.** Sw.

566. **Phajus grandifolius.** Lour. China, Cochin. cult. 647.

Fl. hgk. 357.—*Bletia Tankervillae Br.*

567. **Epidendron tuberosum.** Linn. China, Cochin. cult. Lour. 639.

Lamarck Enc. Bot. I. 186. West-Indies.

568. *Ceraja simplicissima.* Lour. China, Cochin. 633.

Endl. Gen. Pl. 1369. **Dendrobium.** Sw.

569. *Gladiolus undulatus.* Linn. Canton, in hortis. Lour. 45.

Spreng. Syst. I. 152. **Gl. cuspidatus.** Linn. C. B. Sp.

570. *Ixia chinensis.* Linn. China, Cochin. cult. Sin: *se can* (射 干). Lour. 46.

Lin. Chin. pl. 243.—Fl. hgk. 365. **Pardanthus chinensis.** Ker.

571. *Crinum zeylanicum.* Linn. China, Cochin. Sin: *san toat.* Lour. 245.

Kth. enum. V. 581. **Crinum Loureiri.** Roem. et Sch.—Loureiro's *Crinum asiaticum.* Linn. (Lour. 244) is according to Roem. et Sch. a new spec: **Crinum cochinchinense.** But *Cr. asiaticum* Linn. has been observed also in South-China. Flor. hgk. 366.

572. *Amaryllis sarniensis.* Linn. Culta in Sinis. Sin: *hiuen tsao* (萱 草). Lour. 247.

Kth. enum. V. 618 **Nerine? cochinchinensis.** Roem. The above Chin. name is generally applied to *Hemerocallis.*

573. **Tacca pinnatifida.** Linn. China, Cochin. cult. Lour. 368.

Kth. enum. V. 459. India orient., Philipp.

574. **Dioscorea oppositifolia.** Linn. China, Cochin. spont. edulis. Sin: *san yo* (山 藥). Lour. 766.

Fl. hgk. 367.

575. **Dioscorea alata.** Linn. China, Cochin. cult. Sin: *yu thau* (芋 頭). Lour. 765.

Osb. 245.—Kth. enum. V. 387. India orient, Philipp. The above Chin. name is rather applied to *Arum* or *Colocasia.*

576. **Bromelia Ananas.** Linn. Colitur in Cochin. Lour. 237.

577. *Stemona tuberosa.* Lour. China, Cochin. Sin: *pe pu tsao* (百部草). 490.

Kth. enum. V. 287. **Roxburghia gloriosoides.** Jones. (fide Wallich) India orient.

578. **Smilax China.** Linn. China, Cochin. Sin: *thu fu lin* (土茯苓). Lour. 763.

Osb. 247. But Maxim. Dec. X. 410 doubts whether Lour.'s plant is really Sm. China.

579. **Smilax perfoliata.** Lour. Cochin. 763.

Kth. enum. V. 250. Also in Java (Blume.).—Journ. Bot. 1879. 15. Hainan (Swinhoe.).

580. *Dracaena ferrea.* Linn. China, Cochin. cult. agrest. Sin: *tiet tsao* (鐵草). Lour. 242.

Osb. 249.—Kth. enum. V. 24. **Cordyline Jacquini.** China. Introducta in Bengaliam.

581. **Hemerocallis fulva.** Linn. China, Cochin. Sin: *kim cham hoa* (金針花). Lour. 254.

Linn. Chin. pl. 251.

582. **Allium Cepa.** Linn. China, Cochin. cult. Sin: *tsum si* (葱). Lour. 249.

Under the above Chin. name in N. China *Allium fistulosum* is cultivated.

583. **Allium sativum.** Linn. Cult. China, Cochin. Sin: *suon* (蒜). Lour. 249.

Cultivated throughout China.

584. *Allium odorum.* Linn. China, Cochin. Sin: *kieu* (韭), *khio*. Lour. 251.

Kth. enum. IV. 454. Lour.'s plant (non Linn.) is **Allium Thunbergii.** Don. Regel Monogr. Allior. 235 combines also *A. chinense.* Don. with this. —In Peking *A. odorum.* Linn. is known under the above Chin. name.

585. *Allium triquetrum.* Linn. China, Cochin. cult. Sin: *kiai, kiao theu.* Lour. 250.

Regel l. c. combines it with **Allium Thunbergii.**

586. *Allium angulosum.* Linn. China, Cochin. cult. Sin: *kieu tsai* (韭菜). Lour. 251.

Kth. enum. IV. 422. Lour.'s plant is **Allium uliginosum.** Don. Baker refers this to **A. tuberosum** Roxb. Japan, China, India.

587. *Ornithogalum sinense.* Lour. Canton. Sin: *tien suon* (天蒜). Lour. 255.

Kth. enum. IV. 337. **Bernardia scilloides.** Lindl.—Fl. hgk. 373.—Frequent in North-China.

588. *Aloe perfoliata* Linn. Regnum Champava. Sin: *lu hoei* (盧會). Lour. 252.

This Chin. name is applied in Canton to **Aloe vulgaris.** Lam. (Parker) which is the same as the plant Lour. describes (non Linn.). India, Cambodia.

589. **Fritillaria cantoniensis.** Lour. Canton. Lour. 255.

Kth. enum. IV. 255. Valde dubia.

590. **Lilium candidum.** Linn. China, Cochin. cult. Sin: *pe ho* (百 合). Lour. 256.

Kth. IV. 267. Dubia. The above Chinese name is applied to several Lilies with edible bulbs. In Peking *Lilium tigrinum.* Ker.

591. *Lilium pomponium.* Linn. Canton. Sin: *cuon tan hoa* (卷 丹 花). Lour. 257.

Ktb. enum. IV. 259. Lour.'s plant is **Lilium tigrinum.** Ker.—Much cultivated in North-China.

592. **Lilium camtchatkense.** Linn. China, Cochin. Sin: *chu tan hoa.* Lour. 257.

593. *Melanthium cochinchinense.* Lour. China, Cochin. Sin: *tien muen tum* (天 門 冬). Lour. 268.

Fl. hgk. 371. **Asparagus lucidus.** Lindl.—In Peking this plant is cultivated under the above Chin. name.

594. *Liriope spicata.* Lour. China, Cochin. cult. Sin: *mac lan.* 248.

Fl. hgk. 371. **Ophiopogon spicatus.** Ker.

595. *Garciana cochinchinensis.* Lour. Cochin. Canton. Sin: *tien lum.* 20.

Kth. enum. III. 380. **Philydrum lanuginosum.** Banks. Also in New Holland.—Fl. hgk. 380.—Sin: 田 葱 *t'ien ts'ung.* (Parker).

596. **Commelina communis.** Linn. Cochin. Lour 48.

Osb. 252.—Fl. hgk. 376.

597. **Commelina benghalensis.** Linn. Cochin. Lour. 49.

Fl. hgk. 376.

598. *Tradescantia vaga.* Lour. Canton. Sin: *xit koat koung.* 239.

Kth. enum. IV. 101. **Commelina vaga.**

599. *Lechea chinensis.* Lour. Canton. Sin: *chat yu tsao.* 76.

Kth. enum. IV. 60. **Commelina? Loureiri.**

600. *Commelina tuberosa.* Linn. Cochin. Tubera edulia. Lour. 50.

Journ. Bot. VI. 250. Lour.'s plant is **Aneilema Loureiri.** Hance. Canton.

601. *Commelina medica.* Lour. China, Cochin. Sin: *me muen tum* (麥 門 冬). Lour. 50.

Kth. enum. IV. 67. **Aneilema medica.** R. Br.—The above Chinese name in China as well as in Japan is applied to *Ophiopogon japonicus.* Ker.

602. **Floscopia scandens.** Lour. Cochin. 238.

Fl. hgk. 377. Probably identical with *Floscopia paniculata.* Hassk. Indian Archip. Hongkong.

603. *Scirpus capsularis.* Lour. China, Cochin. Sin: *tem sin tsao* (燈心草). 55.

Journ. Bot. 1875. 106. Dr. Hance has proved, that this is **Juncus effusus.** Linn. common in China, Manchuria.

604. **Cocos nucifera.** Linn. Cochin. Hainan. Sin: *yai su* (椰樹). Lour. 692.

605. **Areca Catechu.** Linn. Cochin. China austr. rarior. Sin: *pin lam* (檳榔). Lour. 695.

606. **Phoenix pusilla.** Lour. Cochin. 753.

Add. Fl. hgk. 129. Most likely identical with *Phoenix farinifera.* Roxb. *Ph. acaulis.* Bth. Fl. hgk. 340.

607. **Pandanus odoratissimus.** Linn. China, Cochin. spont. cult. Lour. 739.

Add. Fl. hgk. 129.

608. *Acorus Calamus.* Linn. Chin. Cochin. in locis petrosis. Sin: *se cham pu* (石菖蒲). Lour. 259.

Kth. enum. III. 87. Lour.'s plant is **Acorus terrestris.** Rumph. India orient. But the true *A. Calamus* is also found in South-China. Fl. hgk. 345.

609. *Orontium cochinchinense.* Lour. China, Cochin. Sin: *sui cham pu* (水菖蒲). Lour. 258.

Kth. enum. III. 87. **Acorus cochinchinensis.** Schott.

610. **Pothos scandens.** Linn. Cochin. Lour. 650.

Fl. hgk. 344.

611. *Arum esculentum.* Linn. China, Cochin. frequentissime. Cibus est communissimus. Sin: *hai yu* (海芋). Lour. 654.

Osb. 254.—Kth. enum. III. 87. **Colocasia esculenta.** Schott. *Calladium esculentum* Vent.

612. *Arum Colocasia.* Linn. Cochin. cult. Lour. 653.

Kth. enum. III. 87. **Colocasia antiquorum.** Schott.—According to Parker 芋頭 *yü t'ou* in Canton.

613. *Arum indicum.* Lour. Cochin. cult. 655.

Fl. hgk. 343.—Kth. enum. III. 89. **Colocasia indica**=A. indicum. Lour. (fide Roxb.).

614. *Arum macrorhizum.* Linn. China, Cochin. Sin: *dea vu.* Lour. 654.

Kth. III. 88. Linn.'s plant (India) is **Colocasia macrorhiza.** Schott.

615. *Arum cucullatum.* Lour. Canton. Sin: *chim mi vu.* 656.

Kth. III. 88. **Colocasia cucullata.** Schott.—Roxb. Fl. ind. III. 501. China australis, Bengalia.

616. *Arum sagittifolium.* Linn. China, Cochin. culta, spont. Sin: *tai lei thau.* Lour. 653.

Kth. III. 44. Linn.'s plant **Xanthosoma sagittaefolium.** Schott. America.

617. *Arum pentaphyllum.* Linn. China. Sin: *tien nan sin.* (天南星). Lour. 652.

Kth. enum. III. 20. Linn.'s plant **Arisaema pentaphyllum.** Schott. India orient. Lour.'s plant dubious.

618. *Arum triphyllum*. Linn. China, Cochin. Sin: *puon hia* (半夏). Lour. 652.

Kth. enum. III. 20. **Arisaema Loureiri.** Blume. Stirps dubia.

619. *Arum Dracontium*. Linn. China, Cochin. Sin: *puon hia* (半夏). Lour. 651.

Kth. III. 19. Lour.'s plant **Arisaema cochinchinense.** Blume.

620. *Zala asiatica*. Lour. China, Cochin, Sin: *feu peng* (浮萍). 492.

Endl. Gen. Pl. 1669. **Pistia.** In Peking the above Chin. name refers to *Lemna minor*. L.

621. **Typha latifolia.** Linn. China, Cochin. Sin: *pu hoam* (蒲黃). Lour. 675.

Kth. enum. III. 90. Europa, Asia bor., America bor.—Frequent in North-China.

622. **Lemna minor.** Linn. Cochin. Lour. 671.

Osb. 255.—Add. Fl. hgk. 129. Frequent in S. China.—*Common also in* N. China.

623. *Sagittaria sagittifolia*. Linn. Cochin. Lour. 698.

Osb. 256.—Kth. enum. III. 157. Lour.'s plant is **Sagittaria chinensis.** Sims.

624. **Eriocaulon quadrangulare.** Lour. China, Cochin. Sin: *kouc san tsao* (穀精草). 76.

According to Parker the above Chinese name in Canton is applied to *Eriocaulon Wallichianum*. Mart.

625. **Cyperus rotundus.** Linn. China, Cochin. Sin: *kiam phu cu* (香附子). Lour. 53.

Osb. 262.—Fl. hgk. 387.

626. *Cyperus elatus*. Linn. Cochin. Lour. 54.

Kth. enum. II. 93. Linn.'s plant is **Cyperus distans.** Linn. India orient., Nova Holland. Maurit. C. B. Sp.—Fl. hgk. 387.

627. **Cyperus compressus.** Linn. Cochin. Lour. 54.

Fl. hgk. 385. Common in S. China.

628. *Scirpus supinus*. Linn. Cochin. Lour. 55.

Fl. hgk. 394. **Isolepis supina.** R. Br.

629. *Scirpus miliaceus*. Linn. Cochin. Lour. 55.

Fl. hgk. 393. **Fimbristylis miliacea.** Vahl.

630. *Holcus Sorghum*. Linn. China, Cochin. cult. Lour. 793.

Sorghum vulgare. Pers. Cultivated throughout China.

631. *Holcus saccharatus*. Linn. China, Cochin. Lour. 792.

Sorghum saccharatum. Pers. Cultivated throughout China.

632. **Andropogon Schoenanthus.** Linn. China, Cochin. cult. Sin: *mao hiam* (茅香). Lour. 793.

Osb. 268.—Kth. enum. I. 493. India orient.

633. *Rhaphis trivialis*. Lour. China, Cochin. 676.
Kth. enum. I. 505. **Chrysopogon aciculatus**. Trin.—Fl. hgk. 424.

634. *Saccharum spicatum* Linn. Cochin. Sin: *mao ken* (茅根). Lour. 67.
Kth. enum. I. 470. **Perotis latifolia**. Ait.—Fl. hgk. 418.

635. **Saccharum officinarum.** Linn. China, Cochin. cult. Sin: *can che* (甘蔗). Lour. 66.
Osb. 265.—The Sugar cane is much cultivated in S. China.

636. **Triticum.** Variae species nascuntur in China. Sin: *me* (麥 *Triticum sativum.*). Lour. 75.
Wheat is cultivated throughout China, more commonly in the northern provinces.

637. **Hordeum.** Sin: *meu* (牟). Lour. 75.
Meu is rather the classical Chinese name for Barley, which is cultivated in all provinces of the Empire, but more commonly in the north.

638. *Arundo Bambus*. Linn. China, Cochin. Sin: *ye cho* (葉竹). Lour. 70.
Osb. 292.—Munro Bambusaceae. Trans. Linn. Soc. XXVI. **Bambusa arundinacea**. Retz. India, China. Hongkong cult. Hance. (dubia.).

639. *Arundo agrestis* Lour. China, Cochin. 72.
Kth. enum. I. 432. **Bambusa agrestis**. Poir.

640. *Poa chinensis*. Linn. Cochin. Lour. 69.
Osb. 287.—Fl. hgk. **Leptochloa chinensis**. Nees.—Kth. enum. I. 270. *L. tenerrima*.

641. *Cynosurus aegyptius*. Linn. Lour. 75.
Osb. 291.—**Dactyloctenium aegyptiacum**. Willd. Fl. hgk. 429.—*Eleusine cruciata*. Lam.

642. *Cynosurus indicus*. Linn. Lour. 75.
Fl. hgk. 429. **Eleusine indica**. Gaert.

643. *Nardus indica*. Linn. In montibus occident. imper. Sinensis. Sin: *cam sum hiam* (甘松香). Lour. 56.
Kth. enum. I. 258. **Microchloa setacea**. R. Br.—Flor hgk. 428.

644. **Agrostis plicata.** Lour. Canton. Sin: *sam souc tsau*. 64.

645. *Agrostis indica*. Linn.? Cochinchina. Lour. 63.
Osb. 283.—Kth. enum. I. 211. **Sporobolus indicus**. R. Br. Fl. hgk. 426.

646. **Spinifex squarrosus.** Linn. China, Cochin. Lour. 794.
Fl. hgk. 415.

647. *Panicum Crus Corvi*. Linn. Cochin. Lour. 59.
Kth. enum. I. 143. **Panicum Crus Galli**. L. Osb. 275. Fl. hgk. 411.—Common in N. China.

648. **Panicum miliaceum.** Linn. Pekini et aliis locis Sinarum. Colitur. Lour. 59.
Largely cultivated throughout China.

649. *Panicum italicum*. Linn. China, Cochin. cult. Sin: *siao me* (小 米.) *so* (粟). Lour. 58.
Setaria italica. Kth. Largely cultivated in China.

650. *Alopecurus hordeiformis*. Linn. Cochin. Lour. 60.
Osb. 280.—Gymnothrix hordeiformis. Nees. Observed also in N. China.

651. **Coix Lachryma.** Linn. Cult. China, Cochin. Sin: *y y gin* (薏 苡 仁) Lour. 673.
Kth. enum I. 20. India orient.—Cultivated throughout China.

652. **Coix agrestis.** Lour. 674.

653. **Zea Mays.** Linn. China, Cochin. cult. Sin: *pao tuc* (pao cut 包 穀). Lour. 672.
Cultivated throughout China.

654. **Oryza sativa.** Linn. Sin: *mi* (米), *ho* (禾). Lour. 266.
Osb. 281.

655. **Oryza glutinosa.** Rumph. Sin: *no* (糯). Lour. 267.

CRYPTOGAMS.

656. **Equisetum arvense.** Linn. China. Sin: *ma hoam* (麻 黃). Lour. 823.
Has been observed in North-China.

657. **Equisetum hiemale.** Linn. China. Sin: *mo ce* (木 賊). Lour. 824.

658. **Lycopodium cernuum.** Linn. Cochin. Lour. 838.
Osb. 296.—Fl. hgk. 436.

659. **Ophioglossum lusitanicum.** Linn. China, Cochin. Sin: *xe ui* (石 韋). Lour. 825.
The above Chin. name is rather applied to *Niphobolus Lingua*. Spr.

660. *Ophioglossum scandens*. Linn. China, Cochin. Sin: *xi ui tan* (石 韋 藤). Lour. 825.
Osb. 299.—Fl. hgk. 441. Lygodium scandens. Sw.

661. **Adiantum flabellatum.** Linn. Canton. Sin: *tiet quat tsao* (鐵 綫 草). Lour. 836.
Osb. 307.—Fl. hgk. 447.

662. **Adiantum caudatum.** Linn. Cochin. Lour. 835.
Fl. hgk. 447.

663. **Pteris vittata.** Linn. China, Cochin. Lour. 834.
Osb. 304.

664. **Polypodium repandum.** Lour. China. Sin: *ku tsui pu* (骨 碎 補). 826.

665. **Polypodium simile.** Linn. China. Sin: *ku tsui pu* (See the preceding). Lour. 828.

666. *Polypodium varium.* Linn. China, Cochin. Esculentum. Lour. 829.

Osb. 800.—Add. Fl. hgk. 140. **Aspidium varium.** Sw.

667. *Polypodium Baromez.* Linn. China, Cochin. Sin : *keu tsie* (狗 脊). Lour. 829.

Osb. 801.—Fl. hgk. 460. Add. Fl. hgk. 143. *Cibotium glaucum.* Benth. **Cibotium Barometz** J. Sm.

668. **Bryum undulatum.** Linn. China, Cochin. Sin : *sien* Lour. 840.

669. **Agaricus integer.** Linn. China, Cochin. Sin : *kiun* (菌). Lour. 848.

670. **Agaricus deliciosus.** Linn. China, Cochin. Sin : *hiam tsuen* (香 蕈). Lour. 849.

Dried Mushrooms of the above Chinese name are sold in Peking.

671. **Peziza auricula.** Linn. China, Cochin. Sin : *mo lh* (木 耳). Lour. 855.

Sold in Peking.

672. **Clavaria muscoides.** Linn. China, Cochin. prope mare. Sin : *lu kio tsai* (鹿 角 菜). Lour. 856.

673. **Clavaria pistillaris.** Linn. China, Cochin. Sin : *mo cu tsai* (蘑 菇 菜). Lour. 855.

See above Cibot. 34.

674. *Pe fu lin* (白 茯 苓). Tubera ad radices Pinorum in provincia Su chuyen. Radix sinensis alba. Lour. 710.

Pachyma Cocos. Fries. See above Martini. 41.

675. **Mucor Mucedo.** Linn. China, Cochin. Sin : *mui.* Lour. 857.

676. **Lichen tartareus.** Linn. China, Cochin. Sin : *tan* (苔). Lour. 842.

677. **Lichen pulmonarius.** Linn. China, Cochin. Sin : *tien hoa* (天 花). Lour. 842.

678. **Fucus Tendo.** Linn. In Oceano sinensi. Lour. 678.

679. **Fucus saccharinus.** Linn. Ad littora maris sinici. Lour. 847.

680 **Conferva corallina.** Linn. China, Cochin. Sin : *se hoa* (石 花). Lour. 848.

VII. GROSIER. BUC'HOZ.

In 1785 Abbé **GROSIER** published the first edition of his valuable **DESCRIPTION GENERALE DE LA CHINE** in one volume forming the 13th volume of Du Mailla's Histoire Générale de la Chine, edited also by the learned Father Grosier, who was Bibliothécaire de Son Altesse Royale Monsieur, but had himself never visited China. A considerable part of his description of that Empire is devoted to Natural history, namely 108 pages to Botany. A new and much enlarged edition of the work he published from 1818 to 1820 in 7 volumes, nearly three of them treating of Natural history. Vol. II and III, 658 pages, deal with Botany. It supplies a mass of most valuable information with respect to Chinese plants, the vast material accumulated by the author having been principally derived from the accounts of the Jesuit missionaries found in the Lettres édifiantes, Du Halde, the Mémoires conc. les Chinois etc. But Grosier draws also from many unpublished sources. He endeavours to give a list of the Chinese plants which since then had been described by professed botanists. But besides Loureiro's plants from Southern China, of which he generally gives a full account, his enumeration of Chinese specimens known to botanists is far from being complete.

Although Grosier in reproducing all the observations of the missionaries concerning Chinese botany, seldom ventures to identify the plants described, his compilation is very useful and interesting, and I hope, that with the aid of the identifications and commentaries I have supplied in the preceding pages, almost all the statements of the Jesuits relating to Chinese plants will be understood by botanists.

We learn from Grosier that the Jesuit missionaries have introduced many Chinese plants into the *Mauritius* (Isle de France) and *Bourbon*, where they had also missions. Some of these plants were subsequently introduced from these islands into France. Thus *Eriobotrya japonica*. Lindl. had been brought from Canton to the Mauritius and from this place found its way to France, where in 1784 one specimen of the introduced shrubs blossomed. (Grosier II. 504.)—*Livistonia chinensis*. Mart. a Chinese palm was for a long time known in Europe under the name of *Latania burbonica*. Lam.—*Nephelium Litchi* was introduced at the end of the last cent. from China into the Mauritius and subsequently into Guyana. (Grosier II 478.)—In Lamarck's Enc. Bot. many Chinese plants are noticed as cultivated in the Mauritius. I may quote *Euphoria longana (Nephelium longan)* Lam. III. 574, *Cookia punctata*. l. c. VIII. 327, *Driandra cordata (Elaeococca vernicia)*. l. c. II. 329. *Anona uncinata*. (*Artabotrys odoratissimus*) l. c. II. 127, *Litsaea chinensis* (*Tetranthera laurifolia*). l. c. III. 574.

Dianthus chinensis. L. cultivated in Europe since the beginning of the last century has probably also been introduced by the missionaries. Tournefort, who first described this plant in the Memoirs of the Acad. of Paris, 1705, p. 264, under the name of *Caryophyllus chinensis*, states that Abbé Bignon had received (seeds of) it from China about 3 years earlier.

It is merely for the sake of completeness in illustrating the botanical literature with respect to China, that I mention here two volumes of colored drawings of Chinese plants published by *Buc'hoz*, physician in ordinary to King Stanislas.

1. *Collection précieuse et enluminée des Fleurs qui se cultivent dans les jardins de la Chine.* Paris 1776, in folio, 100 plates.

2. *Herbier ou Collection des Plantes médicinales de la Chine*, d'après un manuscrit peint et unique qui se trouve dans la bibliothèque de l'Empereur de la Chine. 100 plates.

These drawings with the Chinese names of the respective plants added (not in Chinese characters.) have been copied from some Chinese collection of pictures sent by the missionaries and have no claim to any botanical value. The medicinal plants especially are very badly represented. The other volume with ornamental plants shows more correct drawings.

Buc'hoz was a very prolific botanical author. But his publications are not entitled to serious attention. Pritzel in his Thesaurus botanicus, after having enumerated B.'s works states:

'Catalogus noster partem solummodo parvam innumerabilium operum miserrimi compilatoris continet, in cujus ignominiam l'Héritier *Buchoziam foetidam* condidit et qui per semiseculum (1758—1807.) ultra 500 volumina consarcinavit.

The plant Pritzel alludes to is *Serissa foetida*. Comm. *Buchozia coprosmoides*. l'Hér. See above Loureiro's plants 278.

We have thus in the preceding pages endeavoured to give a general review of the early knowledge acquired by European naturalists into the flora of China, and have also successively enumerated all Chinese plants which have come under the notice of European botanists up to about the end of the last century. Although the materials for pursuing this line of investigation and for bringing the historical account up to the present day have been accumulated by the author, he must now take leave of the reader, not being in the position at present to work up a treatise which would probably occupy twice as many pages as the present essay.

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ERRATA AND ADDENDA.

Page. 29 Line 13 *For* W. Hooker *read* W. J. Hooker.
„ 34 „ 15–17 *For* as my friend etc., *read* as I learn from the Report of the Kew Gardens 1879, p. 37, *Persea Nan mu* Oliv.—sin: 楠 木 *nan mu.*
„ 35 „ 2 from below. *For* Ou long chu *read* Ou tong chu.
„ 36 „ 10 *For* tsz' *read* ts'z'.
„ „ „ 19 *For* call *read* called.
„ 37 „ 4 & 3 from below. *For* both written in 1701 *read* written in 1700 and 1701.
„ 38 „ 10 *For* 1701 (but perhaps in 1700) *read* 1700.
„ 46 „ 2 from below. *For* Linneus *read* Linnaeus.
„ 50 „ 16 *For* 柳 楊 *read* 楊 柳.
„ „ „ 19 *For* Abiotis *read* Abietis.
„ 51 „ 11 from below. *For* Linneus *read* Linnaeus.
„ 62 „ 12 *For* Lammarck *read* Lamarck.
„ 64 „ 9 *For* Crodil. *read* Crocodil.
„ „ „ 13 from below. *For* H. Asiae *read* Fl. Asiae.
„ 66 „ 23 *For* fractu *read* fructu.
„ „ „ 24 *For* A Kilcola *read* An Kilcola.
„ 67 „ 12 *For* semine *read* semina.
„ 68 „ 20 *For* includente *read* includens.
„ 69 „ 21 *For* 43 *read* 42.
„ „ „ 18 from below. *For* 440 *read* 450.
„ 70 „ 9 „ „ *For* Sigesbeckia *read* Siegesbeckia, *and add after* L.: Gieseke.
„ 73 „ 22 *For* fosciculos *read* fasciculos.
„ 76 „ 11 from below. *For* Inall. *read* Inali.
„ 78 „ 25 *Dele:* But it seems . . . . *to* Chinensis. L.
„ „ „ 18 from below. *For* cochllatum *read:* cochleatum.
„ 81 „ 8 *Dele:* It seems . . . . *to* wrong.
„ 87 „ 2 *After* labrusca *add:* (V. ficifolia Bge.).
„ 92 „ 6 *For* hardly *read* certainly not.
„ 97 „ 7 *For* 352 *read* 353.
„ 98 „ 13 *For* This name *read* The name.
„ 113 „ 12 from below. *For* [illegible] *read* Perhaps [illegible].
„ 116 „ 5 *For* 543 *read* 453.
„ 121 „ 8 *For* Shantung *read* Chili.
„ 123 „ 9 from below. *Read* 16. It is generally etc.

" 125 " 9 *After* tinder *add :* V. 517.
" " " 18 from below. *For* Pergulatoria *read* Pergularia.
" " " 19 " " *For* hiaug *read* hiang.
" 144 " 2 *After* Lam. *add :* var. spinosa Bg.
" 146 " 8 & 9 from below. *For* See above Martini. 26. *read* according to Dr. Hance=L. angulatus. Rich.
" 150 last Line. *After* Fl. hgk. 128.—*add :* Probably 常山 *chang shan* a famous Chin. febrifuge.
" 151 Line 14 from below. *After* Fl. hgk. *add :* 120.
" 153 " 20 *For* Lav. *read* Sav.
" " " 6 from below. *For* Coccinea. Spec. dubia, *read* Spec. dubia Coccinea ?
" 156 " 18 *For* Bullock ? *read* a Bullock.
" 158 " 1 *Dele :* Ct. *after* Osb.
" " " 16 from below. *For* Dec. X. *read* Dec. XI.
" 159 " 19 " " *For* 194 *read* 194 a.
" 162 " 3 " " *For* Giesel. *read* Griseb.
" 163 " 14 " " *For* Oso. *read* Osb.
" 165 " 9 " " *After :* China *add : chi ma.*
" 166 " 18 *For* 85 *read* 185.
" 167 " 16 *After* Europa *add :* O. vulg. Bullock, Hupeh. Journ. Bot. 1880, p. 300.
" 168 " 21 *After* Canton *add:* Amoy. Hance, Journ. Bot. 1880, p. 301.
" 171 " 14 & 18 from below. *For* Wickstroemia *read* Wikstroemia.
" 173 " 3 from below. *For* Morisam, *read* Mori, sam.
" 177 " 8 *For* 357 *read* 355.
" 178 " 7 from below. *For* Bernardia *read* Barnardia.
" 179 " 3 " " *For* Floscopia *read* Floscopa.
" 180 " 26 *For* Calladium *read* Caladium.
" 182 " 23 *After* Fl. hgk. *add:* 430.

◆

ARTICLE II.

COINS OF THE PRESENT DYNASTY OF CHINA.*

By S. W. Bushell, M.D.

IN the first number of the Journal of the Society, published in June 1858, there is a paper by Mr. A. Wylie on the "Coins of the Ta Ts'ing or Present Dynasty of China," which is excellent as far as it goes. Since its publication however so many additional varieties have been discovered that a collection of some of them may be useful to the numismatic student. Chinese authors generally neglect recent coins although the latest Ni Mu in his voluminous work the Ku chin ch'ien luo 古今錢略, published in 1877 in 36 books, commences with a series of the decrees and memorials relating to the coinage, with extracts from the official regulations on the subject, and devotes his 1st book to the money of the reigning dynasty concluding with the Chia ch'ing period. On the large coins of the Hsien fêng period there is a separate brochure by Pao k'ang, the 大泉圖錄 Ta ch'üan t'ou lu published in 1876, which contains most accurate woodcuts of the specimens described, and gives also figures of the government silver and cash notes issued by the Board of Revenue during the same reign, with an appendix containing a series of letters on paper money.

Nearly all the figures in this paper are from fac-simile rubbings of coins in my own collection. I am indebted to the extensive collection of Mr. G. B. Glover for two or three not in my possession. I have figured only such as appear to be distinct varieties issued by the government mints. No special attention has been paid to different modes of writing the same Chinese character such as 隆, 隆, for the second character of 乾隆 Ch'ien lung; 寳, 寚 for 寶 pao &c. Still less have attempts been made to include every variation in the strokes of the Manchu characters which are often corrupt and due only to the ignorance of the illegal coiner.*

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* Read before the Society on the 7th June, 1880.

No. 1 was issued by the second emperor of the dynasty 太宗 *T'ai tsung* who succeeded in 1627. The inscription is in the original pointless form of the Manchu character. The obverse read in the order—left, top, bottom, right—has *Sura han ni chiha* "Money of the *T'ien ts'ung* period, corresponding to the Chinese, 天聰之寶 *T'ien ts'ung chih pao*. The reverse has on the left *chuwan* "ten," on the right *emu yan* "one liang," giving the value and weight of the coin.†

Nos. 2-12 belong to the reign of 世祖 *Shih tsu* (1644-1661), the first of the dynasty to rule over China. and have on the obverse *Shun chih t'ung pao* "Current coin of the Shun chih (period)."

No. 2 has a ring on the reverse, above.

No. 3 has a dot above.

No. 4 has a dot on the left.

No. 5 has 戶 *Hu* above, indicating its issue from the 戶部 *Hu pu*, the Board of Revenue.

No. 6 has above 宣 *Hsüan*, for Hsüan-fu in the province of Chih-li.

No. 7 has on the right 川 *Ch'uan*, for Ssŭ-ch'uan.

No. 8 has on the right 午 *Wu*, the meaning of which is doubtful.

No. 9 has on the left 一 Yi "one."

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* Many of these are given in an article by Mr. J. Kirkwood in the China Review (Vol. VII. No. 3) to which I may refer those curious in such matters. Nos. 21, 22, 23, 33, 34, 37, 62, 63, 65, 77 for instance differ from coins figured by Mr. Wylie only, if at all, in the slightest variation in the form of the Manchu letters. No 4 in the same article is a typical example of the ingenuity of the Chinese variety-monger a common Shun-chih coin having been altered by the conversion of 東 tung into 陳 chên and some of the strokes of the corresponding Manchu word chiselled away so as to form an illegible monstrosity. Two of the Chi hsiang coins are wrongly given as belonging to the Ch'ien lung reign and there are other errors in the brief descriptive notes. On the other hand several of the above coins were first figured in this paper and I owe to the author some exchanges of rare specimens.

† For a full description of this coin see a note of mine in the China Review Vol. VI. p. 142. It was modelled after coins, with the same inscription in Chinese on the reverse, current during the Ming dynasty. A similar large coin of the *Shun chih* period is referred to in the Ku chin ch'ien lu with Chinese inscription on the reverse, 十 *shih* above, 一兩 *yi liang* on the right, but it is excessively rare and I have not even seen a figure of it.

No. 10 has *Tung* in Manchu and Chinese indicating the Shan-tung mint, and an additional character 工 *Kung* below.

No. 11 has *Fu* in Manchu and Chinese and was issued in Fu-chien where a mint was founded in 1649.

No. 12 has *Hsi* in Manchu and Chinese and was probably cast in the Shansi mint.

No. 13 belongs to the reign of 聖祖 *Shêng tsu* (1662-1722). It has on the obverse *K'ang hsi t'ung pao*, on the reverse *Nan* in Manchu and Chinese, for the Hu-nan mint, with a crescent above and dot or star below.

No. 14 is an additional coin of the reign of 世宗 *Shih tsung* (1723-1735). It has on the obverse *Yung chêng t'ung pao*, on the reverse *Pao ning*, a transcript of 寶寧, the name of the Ning-po mint.

Nos. 15-25 belong to the reign of 高宗 *Kao tsung* (1736-1795), and have on the obverse *Ch'ien lung t'ung pao*, "Current coin of the Ch'ien lung period."

No. 15 has on the reverse *Pao wu*, the mint of Wu-ch'ang the provincial capital of Hu-pei, with a star below.

No. 16 the same inscription, with a star above.

No. 17 has on the reverse *Pao t'ai*, a transcript of 寶臺, having been issued from the mint of 臺灣 T'ai-wan (Formosa).

No. 18 has on the reverse *Pao i* "I-li mint," a transcript of the Chinese 寶伊, and has a bar above. For this mint, as well as for the silver coinage of Tibet, the regulation was made in succeeding reigns that one fifth of the coins issued should have the inscription *Ch'ien lung t'ung pao*, in memory of the conquest of the country.

Nos. 19-24* are from the mints of Mohammedan cities of Chinese Turkestan, the names of which they have on the reverse in Manchu and Turki, the alphabet of the latter being derived from the Arabic, but so badly written on the coins as to be hardly decipherable. The coins are of reddish alloy being composed of 84 pts. of copper, 34.8 of lead, and 1.2 of tin, in 120 pts. The zinc which gives the yellow colour to the ordinary Chinese coins is not easily obtainable in these districts.

No. 19 has *Aksu* on the left in Manchu, *Aksi* on the right in Turki. The transcript in Chinese is 阿克蘇.

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* No. 19 is figured by Mr. Wylie. Three of the others are also included by him but not from actual specimens.

No. 20 has *Ushi* on the left in Manchu, the Chinese form of which is 烏什; and *Ush* in Turki on the right.

No. 21 has on the left *Yerkiyang* in Manchu, the transcript of the Chinese 葉爾羌; *Yarkand* on the right in Turki.

No. 22 has on the left *Yerkim* in Manchu, the transcript of the Chinese 葉爾奇木; on the right *Yarkand* in Turki.

No. 23 has *Kashiyar* on the left in Manchu and *Kashgar* on the right in Turki. The Chinese form is 喀什噶爾.

No. 24 has *Hotʻiyan* on the left in Manchu, the transcript of the Chinese 和闐. The Turki form ought to be *Khoten*, the second syllable of which is legible on the coin.

No. 25 has on the reverse 安南 *An-nan.* It is a thin, badly cast coin and similar in aspect to the ordinary cash of Cochin-China. It is figured also in the Ku chin chʻien luo and described as issued after the submission of 阮光平 Juan kuang pʻing.

Nos. 26-37 belong to the reign of 仁宗 *Jên tsung* (1796-1820) and have on the obverse *Chia chʻing tʻung pao.*

No. 26 has on the reverse *Pao chʻiowan* for 寶泉 the Board of Revenue mint with a dot above.

No. 27 *Pao yuwan* for 寶源, the mint of the Board of Works, with a dot below.

No. 28 the same inscription with a ring below.

No. 29 *Pao che* for 寶浙 the Che-chiang mint, with a dot below.

No. 30 *Pao kʻiyan** for 寶黔 the Kuei-chou mint, with a dot above.

No. 31 *Pao u* for 寶武 the Wu-chʻang mint.

No. 32 *Pao chʻang* for 寶昌 the Nan-chʻang mint, with a dot above on the left.

No. 33 *Pao yôn* for 寶雲 the Yun-nan mint, with a crescent above.

No. 34 *Pao tʻai* for 寶臺 the Tʻai-wan mint.

No. 35 *Pao i* for 寶伊 the I-li mint.

No. 36 has the same inscription with a perpendicular bar below.

No. 37 has *Aksu* on the left in Manchu, on the right in Turki.

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* Mr. Wylie is wrong in referring the coins with this inscription to the Fu-chien mint, the second character of which would be transliterated in Manchu without an aspirate.

Nos. 38–56 belong to the reign of 宣宗 *Hsüan tsung* (1821-1850) and have on the obverse *Tao kuang t‘ung pao.*

No. 38 has on the reverse *Pao ch‘iowan* for 寶泉 the Board of Revenue mint, with a dot above.

No. 39 *Pao chi* for 寶直 the Chih-li mint.

No. 40 *Pao fu* for 寶福 the Fu-chien mint.

No. 41 *Pao shan* for 寶陝 the 陝西 "Shan-hsi" mint.

No. 42 *Pao k‘iyan* for 寶黔 the Kuei-chou mint, with a ring above.

No. 43 the same with a dot in the centre of the circle.

No. 44 the same inscription with a cross above.

No. 45 a cross below.

No. 46 a solid triangle in relief above.

No. 47 a similar triangle below with apex pointing downwards.

No. 48 a crescent above.

No. 49 has also *Pao k‘iyan* with 大 ta "great" above.

No. 50 *Pao i* for 寶伊 the I-li mint.

No. 51 the same inscription with a dot above.

No. 52 the same with a vertical bar above.

No. 53 is a larger coin from the I-li mint, with the character 十 shih "ten" above, indicating its value to be equal to ten of the common small cash.

No. 54 has *Aksu* on the left in Manchu, on the right in Turki.

No. 55 the same inscription with 八年 *pa nien* "eighth year" (1828) above, and 五 *wu* "five" below, to mark the value.

No. 56 like the last with 十 *shih* 10 instead of 5. These two coins were issued after the recovery of the Mohammedan cities which had revolted from the Chinese rule, and the capture of Jehangir (張格爾), the descendant of the old Khoja rulers who took the title of Sultan in Kashgar in 1826 and was afterwards brought to Peking and beheaded.

The coins issued during the reign of 文宗 *Wên tsung* (1851-1861), the title of whose reign was 咸豐 *Hsien fêng*, are much more numerous. On account of the rebellion in the central provinces the supply of copper which is mainly derived from Yunnan was cut off, and the government was reduced to great straits. In 1853 Ch‘i Chün-tsao the minister in charge of the Board of Revenue memorialized to advise the issue of large coins equal to ten of the ordinary small cash. Then iron furnaces were founded and large quantities of iron coins thrown into circulation. Soon after large coins of the nominal value of 50 and 100 were cast. Those were so successful that the princes and high officials of the Council constituted to put down the rebellion recommended the issue of larger tokens each one representing 500 and 1000 units, and these circulated together with the rest and a new currency of iron and zinc small cash.

At first both officials and common people are said to have united in praise of the convenience of these large coins, but the large margin of profit tempted false coiners who swarmed like bees, and though executed in crowds, others took their place, including even the Buddhist monks. The result was a rapid depreciation of the large coins and finally nobody would take them at any price. Only those of the nominal value of 10 remained in circulation and these still constitute the actual currency of the capital. Their value however has sunk to that of two of the small cash and a tael of silver exchanges for about eight hundred.

The iron money held its ground till 1857 during the first Chinese month of which year there was a popular rising in Peking and it became, at one bound, so much worthless metal. Some of the provincial mints issued iron and zinc coins which had a yet shorter life.

At the time of the issue of the large tokens in the capital orders were sent to the provincial governors to have similar coins made in the various mints, after models which were distributed by the Board of Revenue. In some of the mints the coins were cast but never circulated; in others they circulated for a short time and were then withdrawn; in the rest the receipt of the models was acknowledged, and some pattern coins were duly forwarded for the inspection of the emperor, but no mint was opened.

There are altogether so many varieties that a collection in tabular form of the specimens figured here, together with the fifteen included in Mr. Wylie's article, may be useful, if only as a basis for future discovery and addition.

TABLE OF HSIEN-FENG C (COPPER) AND I (IRON) COINS.

PROVINCE.	CITY.	MINT-NAME.	1.	5.	10.	20.	30.	40.	50.	100.	200.	500.	1000.	NOTES.
Chih-li	Peking	Pao ch'üan	C.I.		C.I.				C.	C.	C.	C.	C.	
"	"	"		C.	C.									*rev. wu wen, shih wen.*
"	"	"							C.	C.	C.	C.	C.	*rev.* star and crescent.
"	"	Pao yuan	C.	C.	C.I.				C.	C.		C.	C.	
"	Pao-ting-fu	Pao chih	C.I.		C.				C.	C.				
"	Chi-chou	Pao chi		C.	C.I.				C.	C.				
Shan-tung	Tsi-nan-fu	Pao tsi	C.		C.				C.					
Kiang-su	Su-chou-fu	Pao su	C.	C.I.	C.I.	C.	C.		C.	C.				
Chê-kiang	Hang-chou-fu	Pao che	C.		C.C_2			C.						C_2 *rev. shih*, above.
Kiang-si	Nan-ch'ang-fu	Pao ch'ang	C.		C.				C.					
Fu-kien	Fu-chou-fu	Pao fu	C.I.		C.	C.			C.	C.				*obv. t'ung pao.*
"	"	"			C.	C.			C.	C.				*obv. chung pao.*
"	"	"		C.	C.	C.			C.	C.				weight on rim of *rev.*
"	"	"			C.	C.								weight on field of *rev.*
Hu-nan	Ch'ang-te-fu	Pao te	C.	C.I.	C.I.				C.					
Ho-nan	K'ai-feng-fu	Pao ho	C.I.		C.				C.	C.		C.	C.	
Shan-si	T'ai-yuan-fu	Pao tsin	C.		C.									
Shen-si	Si-an-fu	Pao shan	C.		C.				C.	C.		C.	C.	
Kan-su	Kung-ch'ang-fu	Pao kung		C.	C.				C.	C.			C.	
"	Ti-hua-chou	Pao ti			C.									also *rev. tang pa* "8"
Kuang-si	Kuei-lin-fu	Pao kuei	C.		C.									
Ssu-ch'uan	Ch'eng-tu-fu	Pao ch'uan	C.		C.				C.					
Yun-nan	Yun-nan-fu	Pao yun	C.		C.									
"	Tung-ch'uan-fu	Pao tung	C.											
Kuei-chou "	Kuei-yang-fu Ta-ting-fu	Pao ch'ien	C.		C.				C.					
Hu-pei	Wu-ch'ang-fu	Pao wu	C.		C.				C.	C.				
Hu-nan	Chang-sha-fu	Pao nan	C.											
Kuang-tung	Kuang-chou-fu	Pao kuang	C.											
Ili	Kuldja	Pao i	C.						C.	C.				
"	Aksu	Aksu	C.	C.	C.				C.	C.				
"	Yarkand	Yerkiang			C.					C.				

Nos. 57-61 are from the Board of Revenue and have the name of the mint in Manchu *pao ch'iowan*, the transcript of 寶泉, on the reverse.

No. 57 has on the obverse *Hsien fêng chung pao* "Heavy coin of the Hsien fêng period", on the reverse 伍文 *wu wên* indicating its value to be 5.

No. 58 reverse 拾文 *shih wên* "ten cash." This and the preceding are rare.

No. 59 is the ordinary Board of Revenue coin, having on the reverse *tang shih*, "equivalent to 10." Both copper and iron.

No. 60 has on the obverse *Hsien fêng yuan pao* "Large coin of Hsien fông", on the reverse *tang êrh pai* "equal to 200".

No. 61 the same obverse, reverse *tang wu pai* "equal to 500".

No. 62 the same obverse, reverse *tang ch'ien* "equal to 1000".

Nos. 63-67 have similar inscriptions to the above from which they are distinguished by the addition of a crescent and dot or star on the reverse, to shew that they were cast and presented to the emperor by the Hereditary Prince of K'o-ch'in 克勤郡王.

Nos. 68-70 are from the Board of Works and have the mint on the reverse in Manchu *pao yuwan*, from the Chinese 寶源.

No. 68 reverse *tang shih* "equal to 10" exists also in iron.

No. 69 reverse *tang wu pai* "equal to 500."

No. 70 reverse *tang ch'ien* "equal to 1000".

Nos. 71-74 belong to Chih-li and were issued from Pao-ting-fu, the provincial capital. They have on the reverse the name of the mint in Manchu *pao chi*, the transcript of 寶直.

No. 71 is the unit, and occurs both in copper and iron.

No. 72 reverse *tang shih* "equal to 10".

No. 73 *tang wu shih* "equal to 50".

No. 74 *tang pai* "equal to 100".

Nos. 75-78 are from the mint established at Chi-chou for the eastern division of the province of Chih-li. The mint-name on the reverse is in Manchu *pao ki*, the transcript of 寶薊. No small cash appear to have been issued.

No. 75 reverse *tang wu* "equal to 5".

No. 76 *tang shih* "equal to 10".

No. 77 *tang wu shih* "equal to 50".

No. 78 *tang pai* "equal to 100".

Nos. 79-81 have on the reverse the Manchu *pao tsi*, the transcript probably of 寶濟 the mint of Tsi-nan-fu in Shantung. The mint in this province was closed in the Ch'ien-lung reign and there is no record of its having been re-opened. The specimens figured are extremely rare and appear to be examples of a few patterns cast merely for imperial inspection as described above.

No. 79 is the unit, from Mr. Glover's collection.

No. 80 the "heavy coin" with *tang shih* "equal to 10" on the reverse.

No. 81 *tang wu shih* "equal to 50".

Nos. 82-85 are from the mint of Su-chou-fu in the province of Chiang-su having on the reverse in Manchu *pao su*, the transcript of 寶蘇. The units, 10 and 100, are figured in Mr. Wylie's paper and these complete the series.

No. 82 has on the reverse *tang wu* "equal to 5". Both copper and iron specimens occur.

No. 83 *tang êrh shih* "equal to 20".

No. 84 *tang san shih* "equal to 30".

No. 85 *tang wu shih* "equal to 50".

Nos. 86-87 are from the Chê-chiang mint and have in Manchu on the reverse *pao che*, the transcript of 寶浙.

No. 86 has 十 *shih* "ten" on the reverse. It is much rarer than the coin of corresponding value figured by Mr. Wylie with *tang shih* on the reverse.

No. 87 is also a rare coin in the collection of Mr. H. B. Morse with *tang ssŭ shih* "equal to 40" on the reverse and is the only known instance of that value.

Nos. 88-90 are from the province of Chiang-hsi and have on the reverse in Manchu *pao ch'ang*, the transcript of 寶昌, for the Nan-ch'ang-fu mint. They are of 1, 10 and 50 nominal value and the inscriptions are similar to the preceding.

Nos. 91-104 are from the Fu-chien mint and have on the reverse in Manchu *pao fu*, the transcript of 寶福.

No. 91 obverse *Hsien fêng chung pao;* on the reverse *tang wu* "equal to 5", the nominal value, and on the rim *êrh ch'ien wu fên* "two ch'ien five fên", the weight. This style of inscription of characters within squares sunk in the rim was adopted from the Japanese.

No. 92 has on the obverse *Hsien fêng t'ung pao*, on the reverse *yi shih* "10".

No. 93 on the obverse *Hsien fêng chung pao*, and the same reverse.

No. 94 the same obverse and reverse with the addition of *chi chung wu ch'ien* "of the weight of 5 ch'ien" on the rim of the reverse, No. 95 is similar but with *chi ching wu ch'ien* on the field of the reverse.

No. 96 on obverse *Hsien fêng t'ung pao*, on reverse *êrh shih* "20".

No. 97 on obverse *Hsien fêng chung pao*, the same reverse.

No. 98 is identical with *chi chung yi liang* "weighing one liang" on rim.

No. 99 *chi chung yi liang* on the field of the reverse.

No. 100 on obverse *Hsien fêng t'ung pao*, on reverse *wu shih* "50".

No. 101 on obverse *Hsien fêng chung pao*, on reverse *wu shih*.

No. 102 the same with *êrh liang wu ch'ien* on the rim of reverse.

No. 103 on obverse *Hsien fêng chung pao*, on reverse *yi pai* "100".

No. 104 similar with the weight—5 liang—*chi chung wu liang*, on the rim of the reverse.

Nos. 105-108 are from the Hu-nan mint and have on the reverse in Manchu *pao te*, the transcript of 寶 德, for Ch'ang-tê-fu. Of Nos. 106, 107 I have both copper and iron coins.

Nos. 109-116 are from the Ho-nan mint, having on the reverse in Manchu *pao ho*, the transcript of 寶 河.

No. 109 is figured from an iron coin. No. 110 has a crescent, No. 111 a circle on the reverse; these are of copper but so wretchedly cast as to be almost illegible, and it is possible that the Manchu legend is *pao su* for the Chiang-su mint.

No. 112 reverse *tang shih* "equal to 10".

No. 113 *tang wu shih* "equal to 50".

No. 114 *tang pai* "equal to 100".

No. 115 *tang wu pai* "equal to 500".

No. 116 *tang ch'ien* "equal to 1000".

Nos. 117, 118 are from the Shan-si mint and have on the reverse in Manchu *pao chin* (*tsin*), the transcript of 寶 晉, the name of the mint being derived from the ancient name of the province.

Nos. 119-124 are from the Shen-si mint having on the reverse in Manchu *pao shan*, the transcript of 寶 陝.

No. 119 is the ordinary small cash.

No. 120 has on the reverse *tang shih* "equal to 10".

No. 121 *tang wu shih* "equal to 50".

No. 122 *tang pai* "equal to 100".

No. 123 *tang wu pai* "equal to 500".

No. 124 *tang ch'ien* "equal to 1000". This specimen has on the reverse a square sunk in the rim below containing the character 官 *kuan*, to indicate that it belongs to a government coinage.

Nos. 125-129 are from a mint started during this reign for the province of Kan-su at Kung-ch'ang-fu, and have on the reverse in Manchu *pao kung*, the transcript of 寶鞏.

No. 125 has on the reverse *tang wu* "equal to 5".

No. 126 *tang shih* "equal to 10".

No. 127 *tang wu shih* "equal to 50".

No. 128 *tang pai* "equal to 100".

No. 129 *tang ch'ien* "equal to 1000".

Nos. 130, 131 are from a mint founded in the extreme N.W. of the province of Kansu at Urumtsi, called by the Chinese Ti-hua-chou, and have on the reverse in Manchu *pao ti*, the transcript of 寶迪. They are of red copper without zinc in the alloy like the Ili coinage.

No. 130 has on the reverse *tang pa* "equal to 8" and is a solitary instance of this denomination.

No. 131 *tang shih* "equal to 10".

Nos. 132, 133 belong to the Kuang-si mint and have on the reverse in Manchu *pao kui*, the transcript of 寶桂, for the capital Kuei-lin-fu. No 133 of the nominal value of 10 seems to have been the only large coin cast. In the adjoining province of Kuang-tung it is said that no large cash were issued from the mint.

Nos. 134-138 are from the Ssŭ-ch'uan mint and have on the reverse in Manchu *pao ch'uan*, the transcript of 寶川.

No. 135 has a crescent on the reverse. No. 136 the character 文 *wén* "unit."

No. 137 *tang shih* "equal to 10".

No. 138 *tang wu shih* "equal to 50".

Nos. 139-147 are from the mint of the provincial capital of Yun-nan and have on the reverse in Manchu *pao yün*, the transcript of 寶雲. There are many varieties of small cash of which eight are figured. No. 140 has on the reverse a circle above. No. 141 a circle below. No. 142 a crescent with a dot. No 143 has a form of the character *wu* "five" above, referring probably to the month of the year, possibly to the year of the reign. No. 144 has 合 *ho*, perhaps a contraction of 拾 *shih* "ten", above, a circle with central dot below.

No. 145 has a crescent below.

No. 146 also a crescent below and 十 *shih* "10" above.

No. 147 has on the reverse *tang shih* "equal to 10".

Nos. 148, 149 are from the mint of Tung-chʻ-uan-fu in the province of Yunnan, and have on the reverse in Manchu *pao tung*, the transcript of 寶東.

No. 149 has on the reverse the Chinese character *chêng* above. The first month of the year is called chêng yueh.

Nos. 150-156 belong to the province of Kuei-chou where there are two mints, one at Kuei-yang-fu, the capital, the other at Ta-ting-fu. The coins of both have on the reverse in Manchu *pao kʻiyan*, the transcript of 寶黔, from the ancient name of the country.

No. 151 has on the reverse *san* "three" probably the month of the year in which it was issued.

No. 152 a cross, a form of *ssŭ* "four".

No. 153 a form of *chʻi* seven in the same style of figure.

No. 154 *shih* "ten".

No. 155 *tang shih* "equal to 10".

No. 156 *tang wu shih* "equal to 50".

Nos. 157-160 are from the Hu-pei mint in the city of Wu-chʻang-fu and have on the reverse in Manchu *pao u*, the transcript of 寶武. The denominations are 1, 10, 50 and 100, with the usual inscriptions on the reverse.

No. 161 belongs to the original Hu-nan mint which was at Chang-sha-fu, the capital of the province, and has on the reverse in Manchu *pao nan*, the transcript of 寶南. This city was taken by the Taipʻing insurgents before the issue of the large coins which were struck for this province at a new mint founded at Chʻang-tê-fu (Figs. 105-108).

Nos. 162-164 are from the Ili mint, having on the reverse in Manchu *pao i*, the transcript of 寶伊.

No. 162 has on the obverse *Hsien fêng tʻung pao*, and is the unit of the currency.

No. 163 obverse *Hsien fêng chung pao*, reverse *tang wu shih* "equal to 50".

No. 164 obverse *Hsien fêng yuan pao*, reverse *tang pai* "equal to 100".

Nos. 165-169 are from the Aksu mint and have the name of the city on the reverse—on the left in Manchu, on the right in Turki which is written with the Arabic alphabet.

No. 165 represents the unit.

No. 166 has on the obverse *Hsien fêng tʻung pao*, on the reverse *tang wu* "equal to 5".

No. 167 a similar obverse with *tang shih*, "equal to 10", on the reverse. A Chinese numismatist, with characteristically minute analysis, notes that the character 寶 is unusually broad and sprawling, proving that the old Tao kuang moulds were used, the characters 八 年 being obliterated (see Nos. 55. 56) and replaced with a separate stamp.

No. 168 obverse *Hsien fêng chung pao*, reverse *tang wu shih* "equal to 50".

No. 169 obverse *Hsien fêng yuan pao*, reverse *tang pai*, "equal to 100".

Nos. 170, 171 are from the Yarkand mint and have the name of the city on the reverse, on the left in Manchu—*Yerkiyang*—on the right in Turki—*Yarkand*.

No. 170 obverse *Hsien fêng tʻung pao*, reverse *tang shih* "equal to 10".

No. 171 obverse *Hsien fêng yuan pao*, reverse *tang pai*, "equal to 100".

No. 172 is figured here from its similarity in style of inscription and alloy to the coins of Chinese Turkestan. It has a on the obverse *Hsien fêng tʻung pao*, on the reverse *tang wu* "equal to 5", and two other characters which would appear to be Manchu and Turki but are so badly written as to be undecipherable.

Nos. 173-203 belong to the reign of 穆 宗 *Mu tsung* (1862-1874). After the death of his father on August 22nd 1861 at Jê-ho (Jehol), the new emperor succeeded and Chi hsiang "Good Luck" was chosen for the name of the epoch, the first year of which would have been 1862. After the return to Peking however there was a *coup d'etat*, the Council of eight appointed by the late Emperor were degraded and the principal members executed, and Prince Kung, in conjunction with the two Empresses Dowager, became Regent. The *nien hao* was then changed to Tʻung chih "Union in order". Money had already been cast in the metropolitan mints but it had not yet been issued, so that the cash were re-melted, a few only being kept as curiosities. They are figured here.

No. 173 has on the obverse *Chi hsiang chung pao* "Heavy money of the Chi hsiang period", on the reverse *tang shih* "equal to 10" with the name of the Board of Revenue Mint in Manchu *pao chʻiowan*.

No. 174 a similar inscription with *pao yuwan* in Manchu for the Board of Works Mint on the reverse.

Nos. 175-176 with the inscription *Chi hsiang tʻung pao* "Current money of the Chi hsiang period" belong to the unit currency of the same two mints.

No. 177 has on the obverse *Tʻung chih tʻung pao*, on the reverse *pao chʻiowan* for the Board of Revenue Mint.

No. 178 on the reverse *pao yuwan*, for the Board of Works.

No. 179 *pao chi* for the Chih-li mint.

No. 180 *pao su* for the Chiang-su mint.

No. 181 *pao che* for the Chê-chiang mint.

No. 182 *pao chʻang* for the Chiang-si mint.

Nos. 183-186 have *pao fü* * for the Fu-chien mint. No. 183 has also on the reverse the Chinese character *chêng* probably for the first month. No. 184 *chin* "nine" in contracted form. No. 185 *shih* "ten". No. 186 *shih êrh* "12."

No. 187 *pao chin* for the Shan-si mint.

No. 188 *pao kung* for the Kansu mint at Kung-chʻang-fu.

No. 189 *pao kui* for the Kuang-si mint, and a circle above.

No. 190 *pao chʻuan* for the Ssu-chʻuan mint.

Nos. 191, 192 *pao yün* for the Yun-nan mint with 合 (a contraction of 拾 ten?); and *shih yi* "11".

No. 193 *pao tung* for the second Yun-nan mint at Tung-chʻuan-fu, with *chêng* above and a crescent below.

No. 194 *pao u* for the Hu pei mint.

No. 195 *pao nan* for the Hu-nan mint.

No. 196 *pao kuwang* for the Kuang-tung mint.

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* On these specimens the *fu* is written with a diphthong instead with a simple vowel as in preceding reigns.

TABLE OF MINTS AND ANNUAL COINAGE (1865).

PROVINCE.	CITY.	MINT NAME.	ANNUAL COINAGE.
Chihli	Peking	Pao chʻüan	899,856,000
„	„	Pao yuan	449,928,000
„	Paotingfu	Pao chih	60,756,840
Shansi	Tʻaiyuanfu	Pao tsin	17,472,000
Kiangsu	Suchoufu	Pao su	111,992,052
Kiangsi	Nanchʻangfu	Pao chʻang	42,037,992
Fukien	Fuchoufu	Pao fu	43,200,000
Chêkiang	Hangchoufu	Pao chê	129,600,000
Hupei	Wuchʻangfu	Pao wu	84,420,000
Hunan	Chʻangshafu	Pao nan	48,054,000
Shensi	Sianfu	Pao shan	94,589,040
Ssŭchʻuan	Chʻêngtufu	Pao chʻuan	157,733,333
Kuangtung	Kuangchoufu	Pao kuang	34,560,000
Kuangsi	Kueilinfu	Pao kuei	24,000,000
Yunnan	Yunnanfu	Pao yun	125,682,480
„	Tungchʻuanfu	Pao tung	44,886,600
Kueichou	Kueiyangfu	Pao chʻien	67,329,900
„	Tatingfu	„	22,443,300
Ili	Kuldja	Pao i	1,122,000

This collection of small Tʻung chih cash is not complete and it may be supplemented by a table of the mints and of the amount of copper money annually cast at each, extracted from the 欽定戸部則例, the official regulations of the Board of Revenue as corrected up to 1865. The numbers are generally calculated for ordinary years and would be proportionally greater when there is an intercalary month. This work may be referred to for details concerning the alloy, the source of the metal used &c. The general weight of each cash is directed to be 1·2 chʻien. A number of heavier coins weighing 1·6 chʻien are cast before the new year for distribution among the guards and eunuchs of the palace, made of pure brass composed of 60 per cent of copper and 40 per cent of zinc; these are called *kua têng chʻien* "lamp hanging money", in popular slang *huang kai-tzŭ* "yellow covers". The percentage of the ordinary money ought to be 54 of copper, 42·75 of zinc, 3·25 of lead. In the provinces where the copper is of inferior quality no lead must be used, its place being supplied with zinc. In Ili where there is no zinc there are in 12 parts, 8·4 of copper, 3·48 of lead and 0·12 of tin.

With regard to the form etc. at the beginning of each reign, models are carved in ivory and presented to the superintendent of the central mint. If approved these are copied with the chisel in pure copper, and the copper models are used to impress the first moulds in which the "mu chʻien" are produced. These "mother coins" are distributed to the various mints, and the provincial authorities have to cast from them a number of "yang chʻien" "pattern coins" and forward them to the Emperor for approval.

Nos. 197-203 comprise large coins which have survived from the token-issue of the previous reign, and all have the inscription *Tʻung chih chung pao*, with the exception of the Yarkand specimen which has *tʻung pao*.

No. 197. has on the reverse *Tang shih* "equal to 10" and is from the Hu pu mint.

No. 198 belongs to the Kung pu mint.

No. 199 with *tang wu* "equal to 5" and No 200 *tang shih* "equal to 10" are from the Kung-chʻang-fu mint in Kan-su.

No. 201 with the inscription Aksu in Manchu and Turki is a large well-cast specimen and has the appearance of a model coin.

No. 202 with *tang shih* "equal to 10" has *Yerkiang* in Manchu, *Yarkand* in Turki.

No. 203 is an anomalous coin extracted from the Ta chʻien tʻou lu with *pao i* for the Ili mint and *tang ssŭ* "equal to 4" on the reverse.

Nos. 204-207 belong to the present Emperor the title of whose reign is Kuang hsü "Brilliant succession" beginning in 1875. They are specimens of the large and small coinage of the two metropolitan mints.

Nos. 208-211 are examples of medals cast in the government mint.

No. 208 has on the obverse *Kʻang hsi chung pao* "Heavy coin of the period Kʻang hsi" (1662-1722): on the reverse a dragon and phoenix with two medallions containing the characters *pao chʻuan*, the name of the mint. A similar medal contains two dragons on the reverse. These are said to have been cast in obedience to a special decree for imperial presents. Dragon and phoenix medals were cast during the three succeeding reigns but not for imperial use and the execution is much inferior.

No. 209 has on the obverse *Tao kuang tʻung pao*, on the reverse *Tʻien hsia tʻai pʻing*. "Peace throughout the empire". Coins with this and other felicitous sentences, such as 長命富貴 *chʻang ming fu kuei* "long life, happiness and rank", are cast at the new year and presented with the "lamp-money" for palace use, and are said to be attached to the corners of wrappers &c. No. 210 with *Yi tʻung tʻien hsia* "The empire under one rule" is a similar medal of the reign Hsien fêng.

No. 211 is a medal with the inscription *Tʻung chih tʻung pao*, and on the reverse figures of the eight diagrams. Whenever a new hall is built in the palace. a *pao ho* "precious box" is put upon the main beam with these "pa kua" medals inside and built into the roof. The box contains in addition current coins of the period, precious stones, the five kinds of metal, the five sorts of grain and silk of different colours. Placing this box under the roof is another instance of the curious contrariety of Chinese customs compared with those of the west.

Nos. 212, 213 are examples of charms, each one taken from a series, which are sometimes confounded with circulating coins of the same period. It is a common superstition that a set of twenty Kang hsi coins, strung together so that the names of the mints on the reverse can be read as a kind of verse, are an efficient protection, if carried by the traveller, against disaster by sea or land. A complete set of the original coins not being so easy to get the demand is supplied by a more modern issue. The Tao kuang and Hsien fêng sets have the Manchu *pao* all through, the Tung chih set the names of the localities transcribed in badly written Manchu, as well as in Chinese.

Nos. 214, 215 belong to 福王 Fu wang, a descendant of the Ming Dynasty who was proclaimed at Nanking in 1644.

No. 214 has on the obverse *Hung kuang t'ung pao*, on the reverse two dots above and below. Two other small coins of this issue exist, one with a ring above, the other with the character 釐 *li* written transversely below.

No. 215 is a large coin with the same inscription on the obverse, and on the right of the reverse *êrh* "two" indicating its value.

Nos. 216, 218 were issued by 唐王 T'ang wang, another prince of the Ming who established his court at Fu chou in 1645.

No. 216 has on the obverse *Lung wu t'ung pao* and a plain reverse.

No. 217 a dot on the reverse above.

No. 218 with the same inscription and plain reverse is a large coin and equivalent to two of the ordinary cash. It occurs both in copper and iron.

Nos. 219-230 were issued by another scion of the Ming, 永明王 Yung ming wang who was proclaimed Emperor on the death of T'ang wang in 1646.

No. 219 has on the obverse *Yung li t'ung pao*, on the reverse two dots.

No. 220 on the reverse *kung* for Kung pu below.

No. 221 the same character on the right of the reverse.

No. 222 御 *yü* "imperial".

No. 223 勅 *ch'ih* "imperial order".

No. 224 鄂 *o* for the province of Hu-pei, of which it is the ancient name.

No. 225 道 *tao* for the chief officer of the circuit tao-t'ai.

No. 226 府 *fu* for the prefect.

No. 227 is a thicker coin with 二厘 *êrh li*, the last character being contracted, indicating the value.

No. 228 with the same obverse in the seal character and plain reverse is equal to two small cash.

No. 229 a larger coin has on the reverse *wu li* "5 li", its value in silver and is equal to 5 unit-coins.

No. 230 still larger has on the reverse *yi fên*, shewing its value to be one hundredth of a tael of silver, equivalent to 10 small coins.

Nos. 231-234 belong to the coinage of another descendant of the Ming entitled 魯王 *Lu Wang* whose seat of government was at T'aichou in Chekiang. Only one coin of this issue is figured in Mr. Wylie's paper with 戶 *hu* on the reverse for the Board of Revenue.

No. 231 with *Ta ming tʻung pao* on the obverse has a plain reverse.

No. 232 has 工 *kung* for the Board of Works.

No. 233 帥 *shuai*, "commander-in-chief."

No. 234 the same character on the right.

No. 235 belongs to the coinage of the rebel 張獻忠 Chang Hsien-chung who established himself in the capital of the province of Ssŭ-chʻuan in 1644. It has on the obverse *Ta shun tʻung pao*, on the reverse below 戶 *hu* for the Board of Revenue.

Nos. 236, 237 belong to the issue of another rebel 孫可望 Sun kʻo wang, the adopted son of the last, who was proclaimed as 東平王 Tung pʻing wang. No 236 has on the obverse *Hsing chʻao tʻung pao*, on the reverse *kung* for the Board of Works. No 237 is a larger coin with the same inscription, equal to two of the former. The existence of any coin of this mintage with plain reverse is very doubtful.

Nos. 238-245 were issued by the Chinese general 吳三桂 Wu San-kuei who had invited the Manchus into China, and been appointed by them to rule Yunnan with the title of "Prince for the pacification of the West" 平西王. He cast money then with the inscription 利用通寶 *Li yung tʻung pao.* In 1674 he declared himself Emperor with Chao wu as the title of his reign.

No. 238 has on the obverse *Li yung tʻung pao*, on the reverse, below, *kung* for the Boord of Works.

No. 239 on the reverse to the left *li* indicating the value.

No. 240 on the reverse, above, *kuei* for the province of Kuei-chou.

No. 241 on the right *yun* for the province of Yun-nan.

No. 242 with *wu li* on the reverse, is equal to 5 small coins.

No. 243 with *yi fên*, the silver-value, written transversely on the reverse, is an unusually small coin.

No. 244 the ordinary large cash of this mint, equal also to 10 units, has on reverse *yi fên* at the top and bottom.

No. 245 with the same inscription and value has *yi* written in its more complicated form.

No. 246 has on the obverse *Chao wu tʻung pao*, on the reverse, below, *kung*, for the Board of Works.

No. 247 has *chêng* above and *chung* below on the reverse, the meaning of which is not clear.

No. 248 is a unit-coin with the same inscription in the seal character on the obverse and plain reverse.

No. 249[*] a large coin with an inscription in the same style, has on the reverse 一分 *yi fên* for the silver-value.

No. 250 was issued by 吳世璠 Wu Shih-fan the grandson and successor of Wu San-kuei who died in 1679. It has on the obverse *Hung hua tʻung pao*, on the reverse, on the right, *kung* for the Board of Works.

Nos. 251-253 belong to another rebel coinage of the beginning of the reigning Manchu dynasty and were issued by 耿精忠 *Kêng Ching chung* who headed an insurrection in Fu-chien and Kuang-tung which was put down in two years.

No. 251 has on the obverse *Yü min tʻung pao*, on the reverse, on the right, *tʻung*.

No. 252 a large well cast coin with the same inscription on the obverse, has *yi chʻien* on the reverse for the silver-value, shewing that ten were equivalent to one tael.

No. 253 a similar coin with *yi chʻien* on the left of the reverse, *chê* for the province of Chê-chiang on the right. [†]

Nos. 254-258 belong to the coinage of the Tʻaipʻing rebels. The rebellion began in Kuangsi and the chief 洪秀全 Hung Hsiu-chʻuan declared himself Emperor in 1851 and took for the title of his dynasty 太平天國 Tʻai pʻing tʻien kuo "Celestial State of Great Peace." He died in 1864 and Nanking was retaken the same year.

No. 254 has on the obverse *Tʻai pʻing tien kuo*, on the reverse *shêng pao* "sacred money".

No. 255 the same inscription, with *shêng pao* written transversely..

No. 256 the same obverse in different order, and a similar reverse.

No. 257 on the obverse *Tien kuo shêng pao* "Sacred money of the Celestial State", on the reverse *Tʻai pʻing*.

No. 258 on the obverse *Tʻai ping shêng pao* "Sacred money of the Tʻai pʻing" with *Tien kuo* on the reverse. [‡]

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[*] Mr. Wylie's No. 220, an anomalous figure with seal-character, obverse and reverse in the ordinary style, is perhaps figured from description only. I have never seen an actual specimen like it.

[†] Another coin of this mint is mentioned with 二分 êrh fên on the reverse.

[‡] Silver coins of different denominations were issued by the Tʻaiping rebels with the legend *Tʻien kuo shêng pao* "Sacred coin of the Celestial State". The official silver coinage of Tibet instituted in 1792 is also not included in this paper, having been figured and described in the "China Review" Vol. VI. p. 349. I have heard of silver coins issued recently by Tso Tsung-tʻang in Kansu but have not seen a specimen.

No. 259 is a specimen which appears to belong to a recent rebel coinage. It has on the obverse *Huang ti t'ung pao* "Circulating coin of the Huang ti (Emperor)", on the reverse *pao chê* the name of the Chê-chiang mint.

In the third year of Hsien fêng (1853), when the large copper tokens were coined, the government paper currency of preceding dynasties was also revived. The notes of two kinds, cash-notes and silver notes, were issued by the Board of Revenue and forced into circulation by paying part of the salary of officials in the new currency and by compelling the banks and large pawnbroking establishments to accept it in lieu of more solid money. The value of these notes however depreciated rapidly until in 1861 they were sold by Dutch auction in the streets of the capital at a discount of 97 per cent (see Dr Rennie's Peking and the Pekingese). Soon after this they disappeared altogether from circulation.

The cash-notes are of four denominations equivalent to 500, 1000, 1500, and * 2000 cash respectively. They are printed from wood-blocks with blue ink on thick whitish paper. The specimen figured is of the value of 1000 cash. It is headed *Ta ch'ing pao ch'ao* "Money note of the great Ch'ing (dynasty)". The ornamental border has above two dragons striving for a pearl, below the fabulous mountain of precious stones with coral-trees in the midst of sea waves, and at the sides clouds interrupted by medallions containing, on the right the character *T'ien hsia t'ung hsing* "To circulate throughout the empire," on the left *Chün p'ing ch'u ju* "Issued and accepted at equal value." Within the border are three lines; the central specifying the value "Equivalent without deduction to 1000 pieces of government cash"; the right the number 426 in black, partly stamped partly written, classified under the character *pien* (one of the words of the thousand character classic used numeratively); the left the date "Made in the seventh year of Hsien fêng (1857)", the number of the year stamped in blue with a separate stamp. Below these is printed: "These "notes shall circulate in place of government cash and will be "received in the proportion fixed for the different taxes, for "all the customs dues, and for the purchase of rank. The "treasuries both of the capital and provinces shall alike accept "and forward them. The cash-notes shall be exchangeable "for government silver-notes in the proportion of 2000 cash

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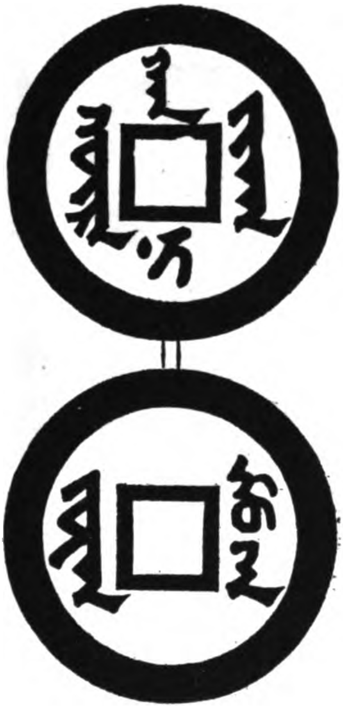
* There is an excellent illustration of a 2000 cash note dated 1859 in Col. Yule's Marco Polo (Vol. I. p. 384).

"for one tael of silver." The large square vermilion seal in the centre is that of the Revenue Board in Manchu and Chinese, *Ta ch'ing pao ch'ao chih yin.* The small oblong seal in black under the date is that of the official in charge put on when the number is written. There is also at the side a round seal (differing in design in different notes) and blotched lines made with a brush before the note has been cut from the tally.

The silver notes are printed on fine Corean paper, also from wooden blocks, in blue. I have examples of 1, 3, 5, 10 and 50 taels and figure the first. The ornamental border has five dragons traversing clouds in the direction of a pearl emitting rays of brilliance like flames, and waves of the sea below with precious emblems floating upon them. Within this border there is at the top an oblong frame containing, in Manchu *Poihun ni churhan ni alpan temket'u*, in Chinese *Hu pu kuan piao* "Government note of the Board of Revenue." The central line has "Equivalent by the two tael scale to one tael of pure silver", the number impressed in black with a large stamp. On the right "Number 29643 of the numeral kung", the first character stamped in black, the number written. On the left the date "Hsien fêng 3rd year (1853), 11th month, 9th day", the year and month printed in black by separate stamps, the day in manuscript. There is printed below: "The Board of Revenue has memorialized to recommend the "circulation of government notes. All shall willingly take "these government notes in exchange for silver and for copper "money, and they shall be equivalent in all cases to silver. "In accordance with the regulations fixed by the Board, "they shall be accepted in definite proportion in payment "of government dues. Those who counterfeit them shall "be punished according to the statutes and shall not be "pardoned." Outside the border on the left near the top is printed "Each tael is 6 per cent less than that of the treasury scale." There are two vermilion seals with inscription in Manchu and Chinese, the small square one in the centre being *Hu pu kuan piao yung yuan t'ung hsing* "The Board of Revenue government note for everlasting circulation." The large oblong one on the edge *Hu pu kuan piao so kuan fang* "The official seal of the Board of Revenue government note office." The third large square crimson seal on the right edge with the Chinese inscription *Hu pu chih yin* "Seal of the Board of Revenue" indicates that the note is for provincial circulation. The figure below to the left is the private signature impressed when the number is written.



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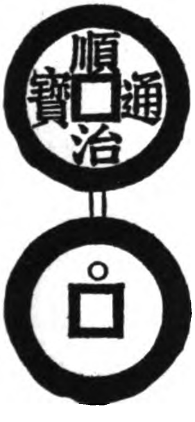

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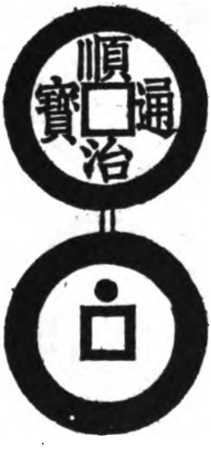

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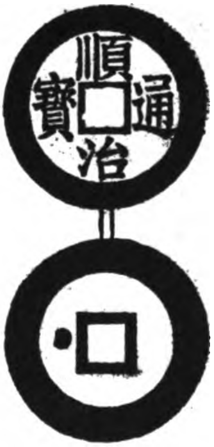

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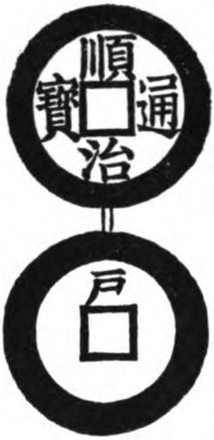

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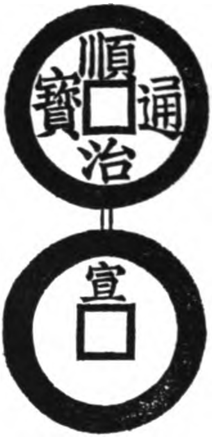

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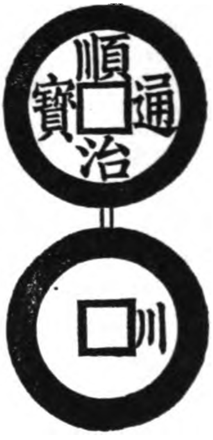

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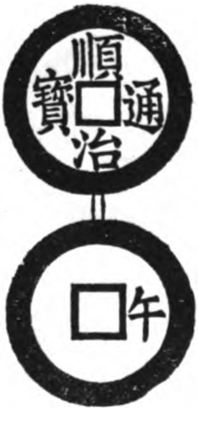

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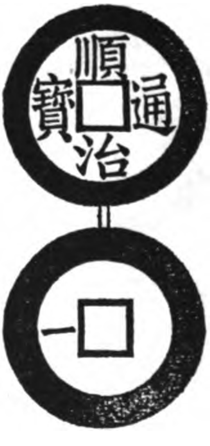

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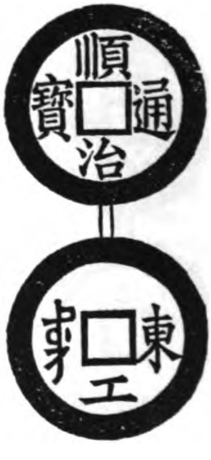

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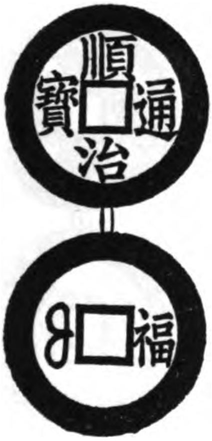

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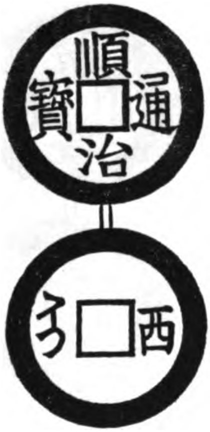

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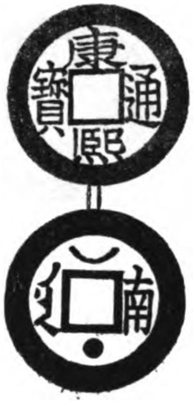

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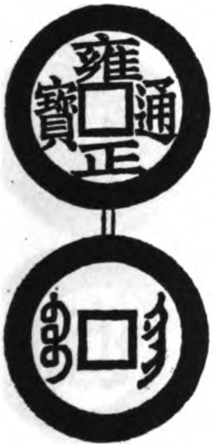

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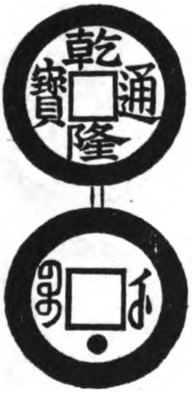

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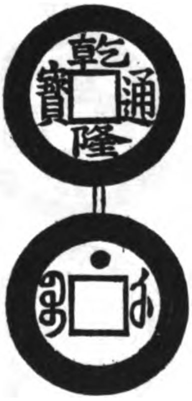

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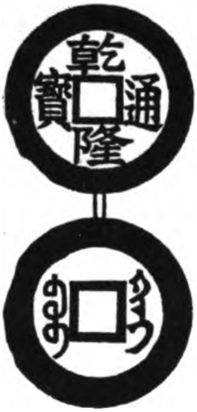

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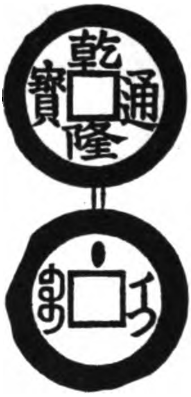

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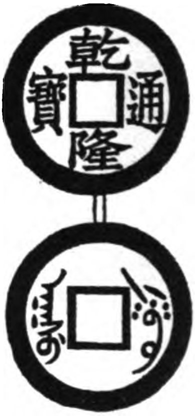

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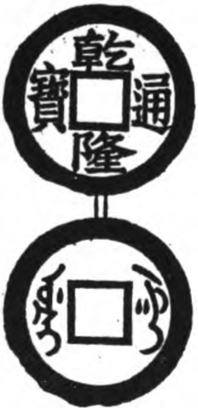

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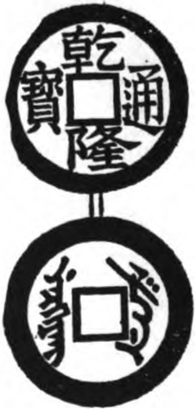

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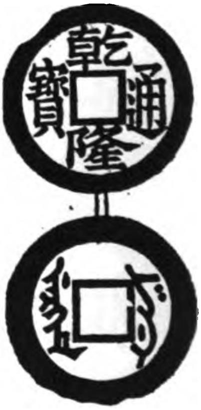

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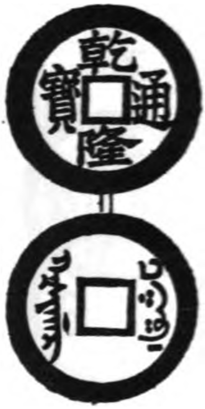

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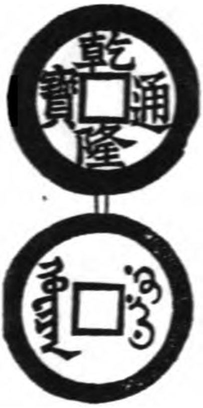

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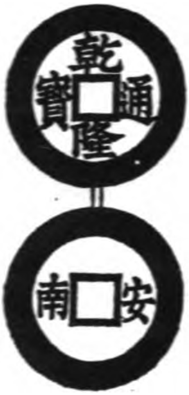

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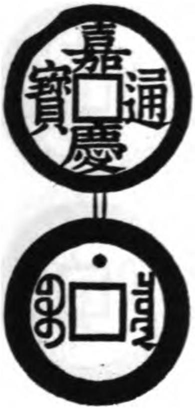

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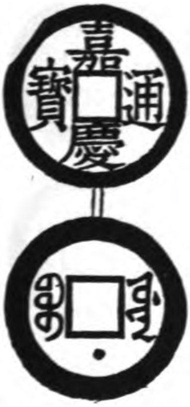

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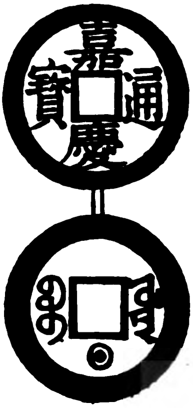

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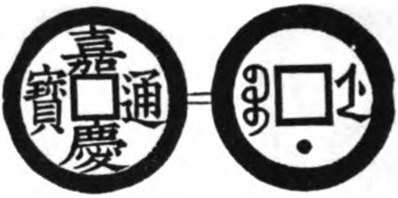

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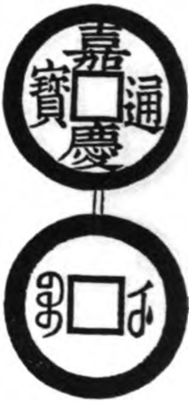

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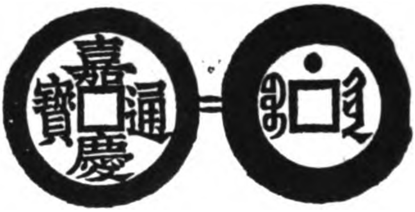

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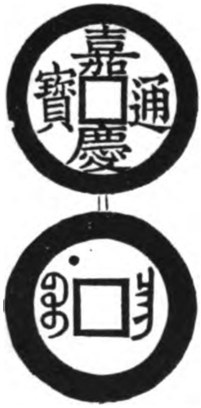

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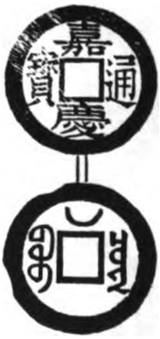

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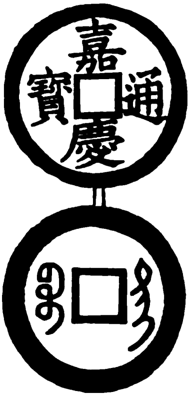

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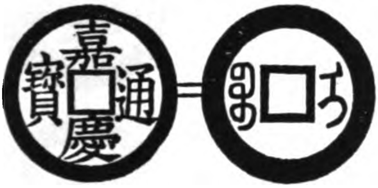

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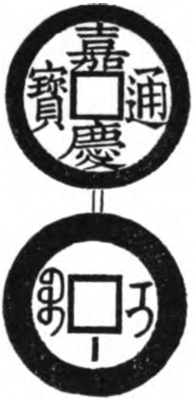

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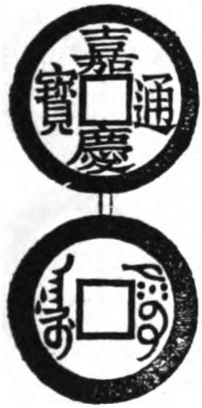

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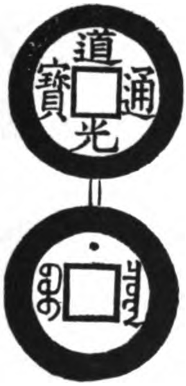

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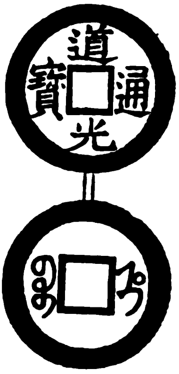

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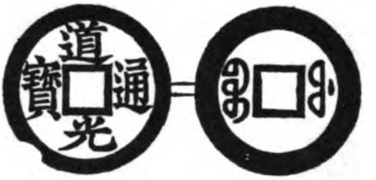

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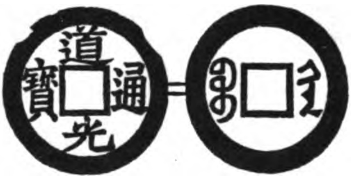

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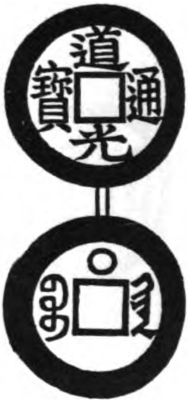

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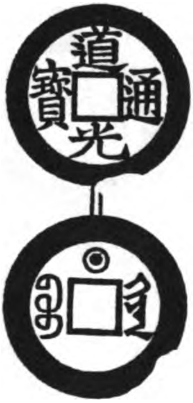

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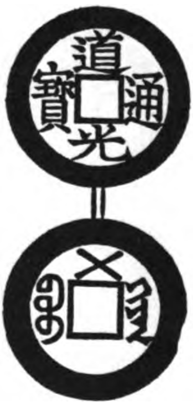

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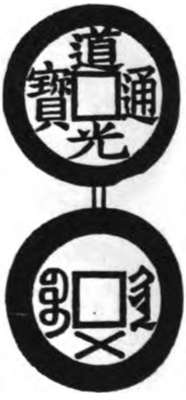

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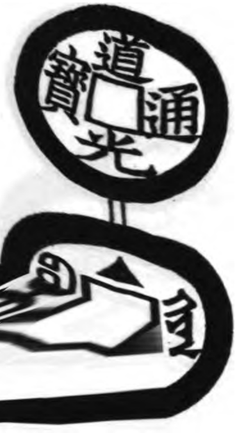

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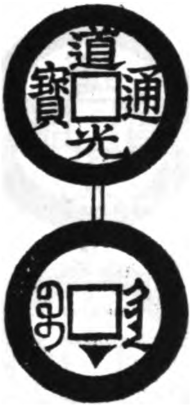

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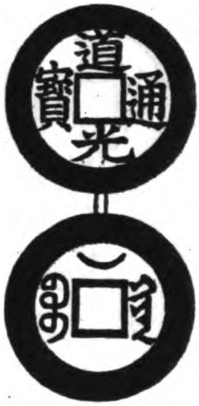

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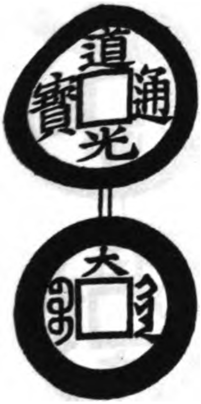

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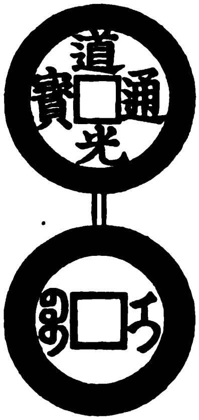

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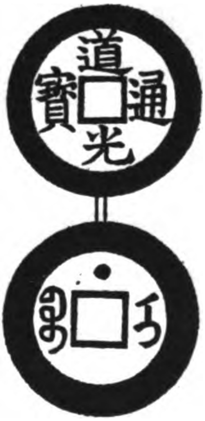

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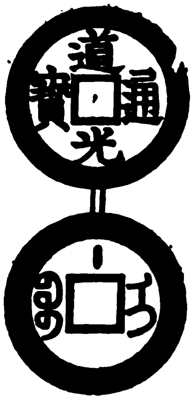

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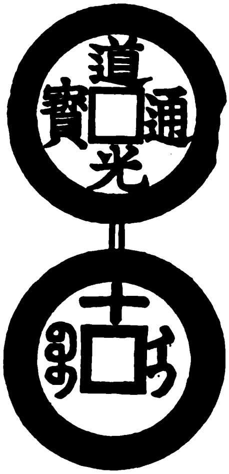

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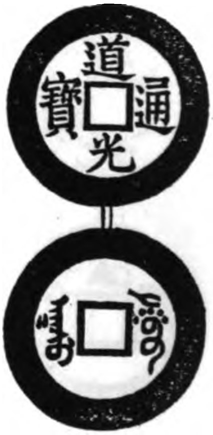

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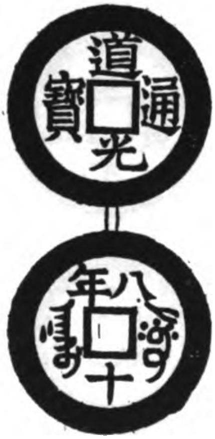

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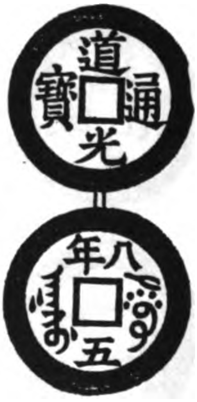

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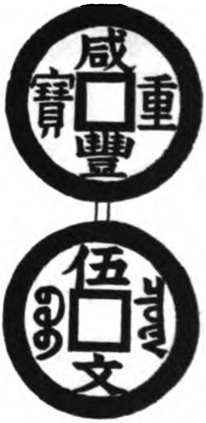

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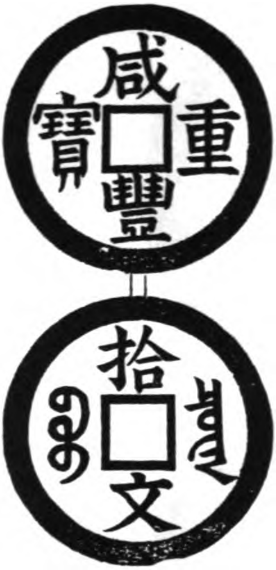

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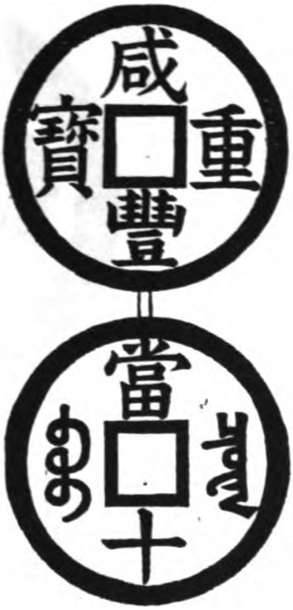

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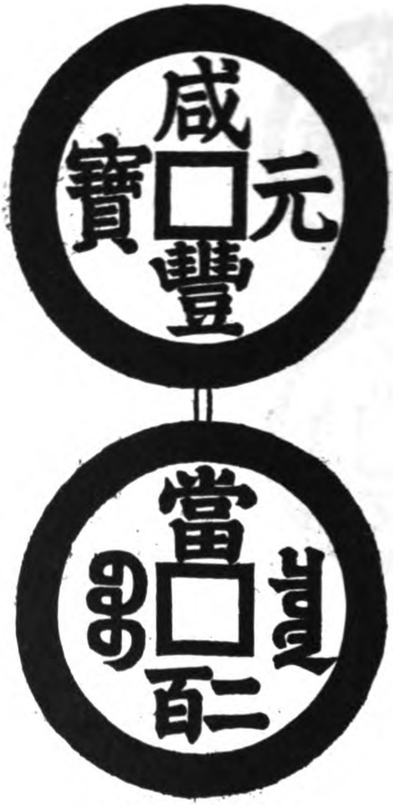

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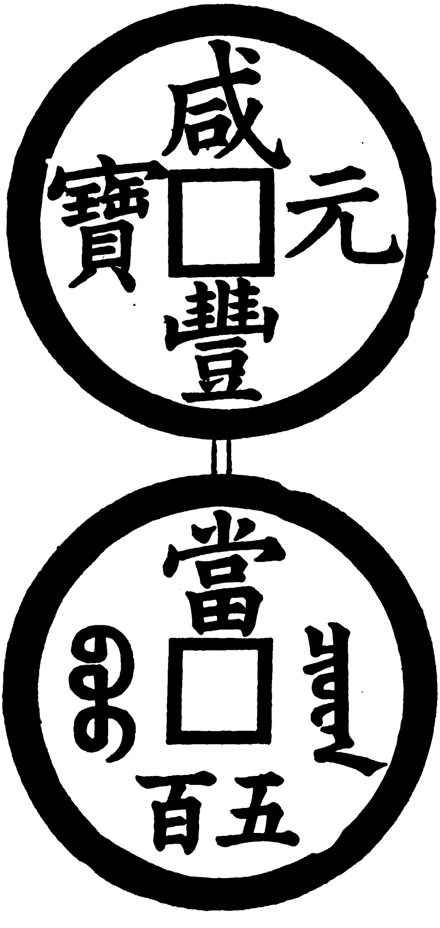

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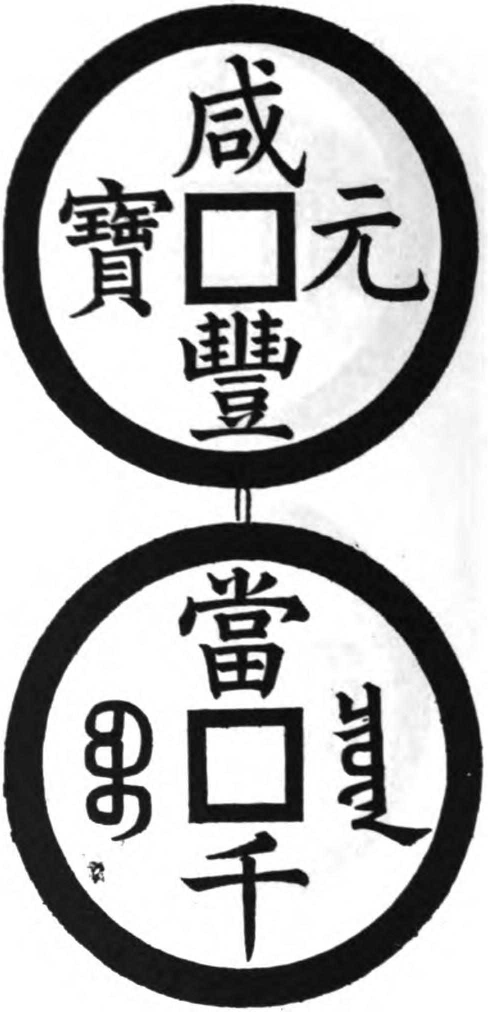

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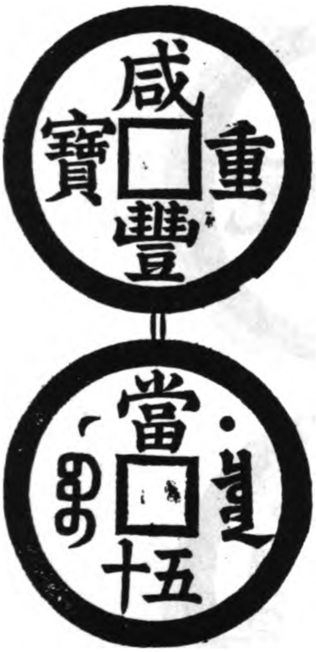

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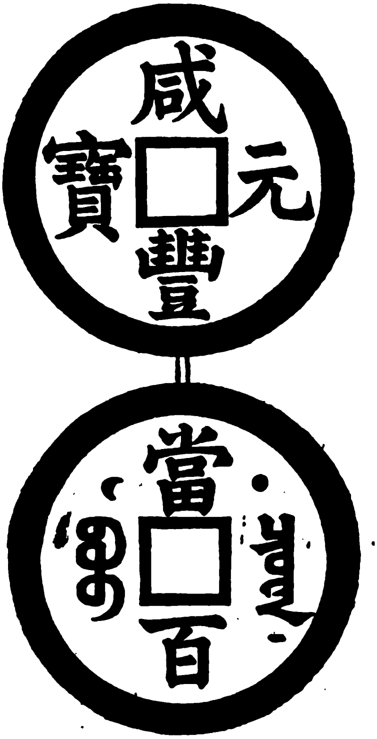

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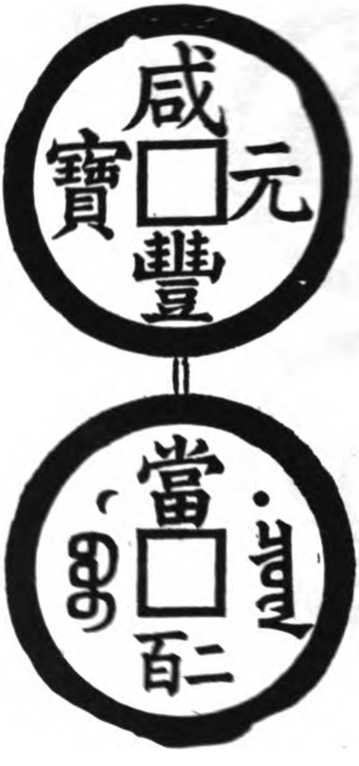

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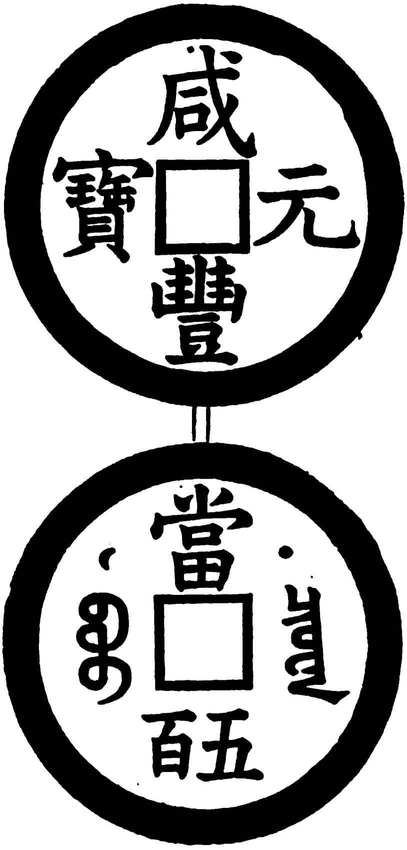

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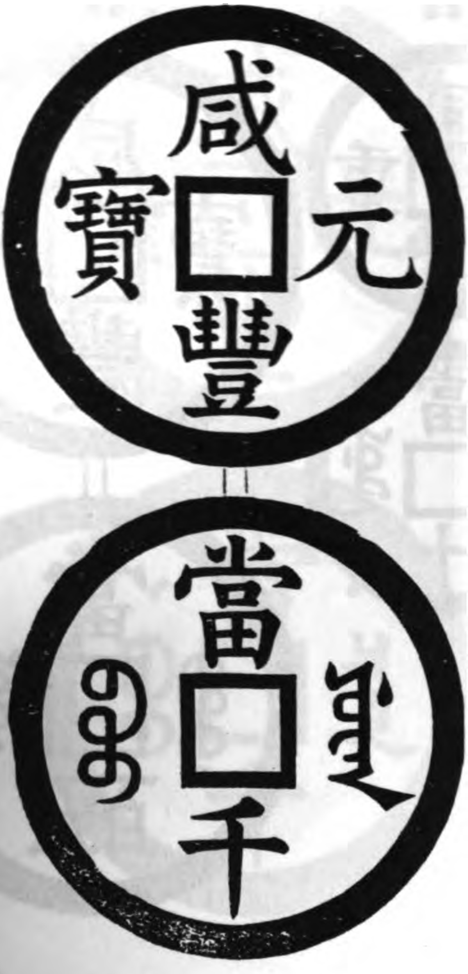

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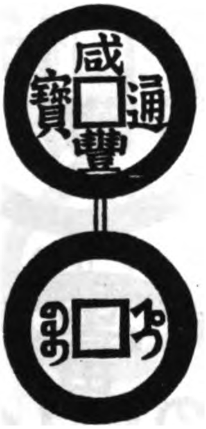

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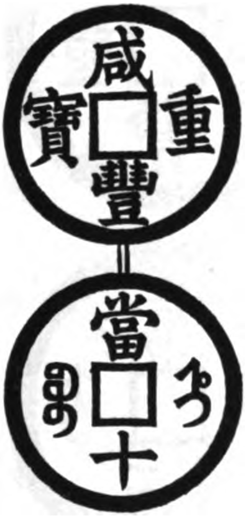

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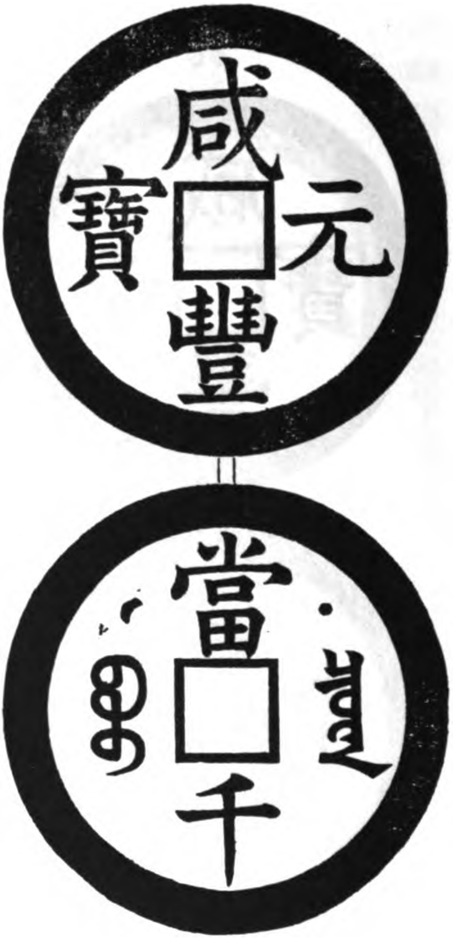

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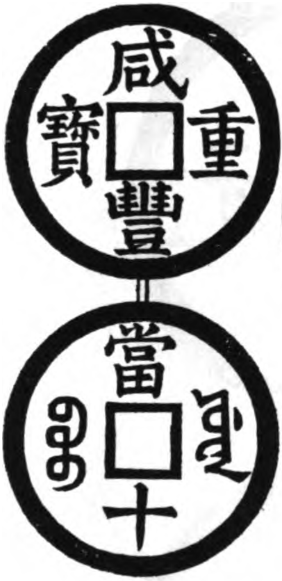

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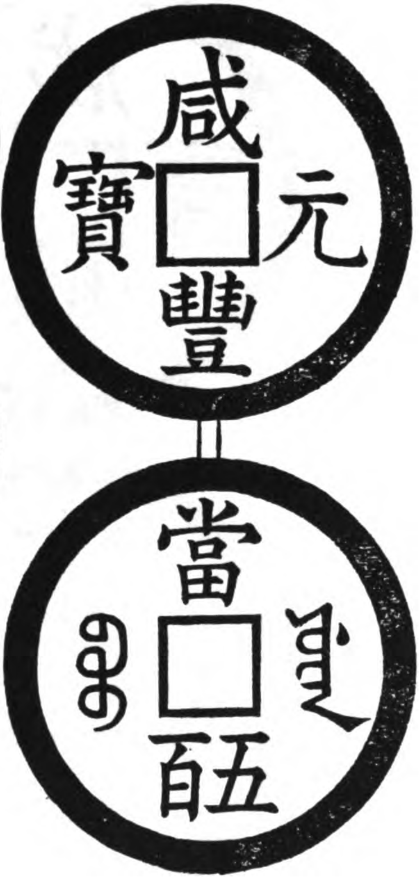

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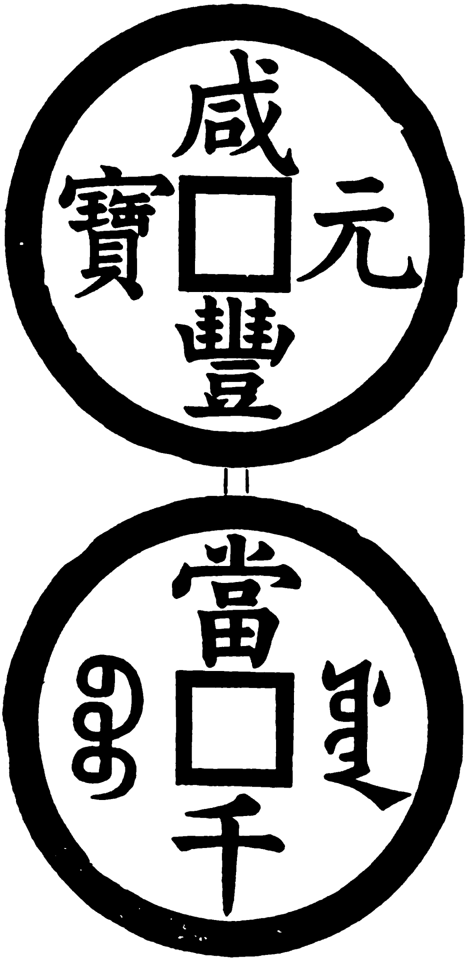

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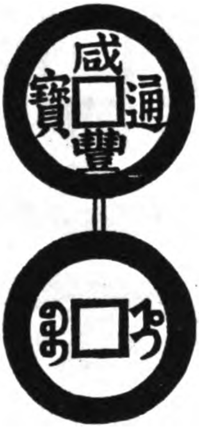

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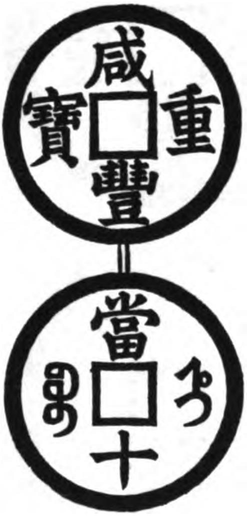

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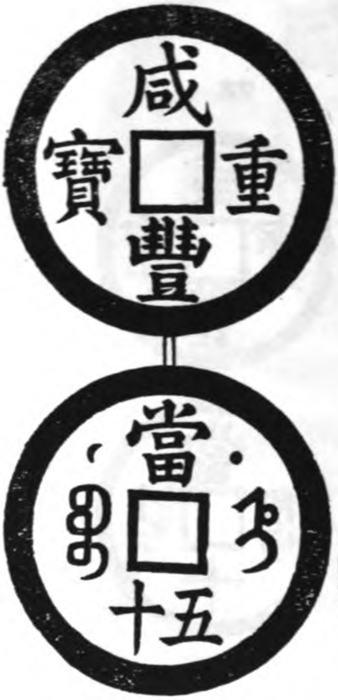

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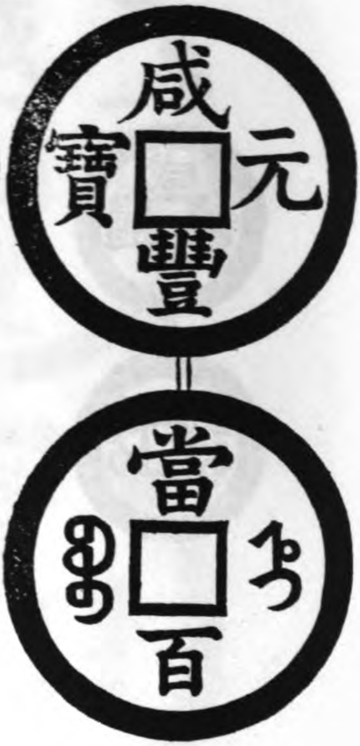

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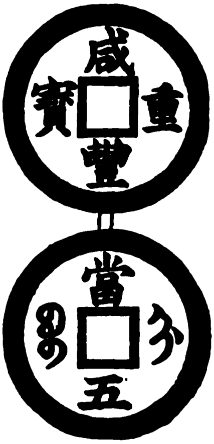

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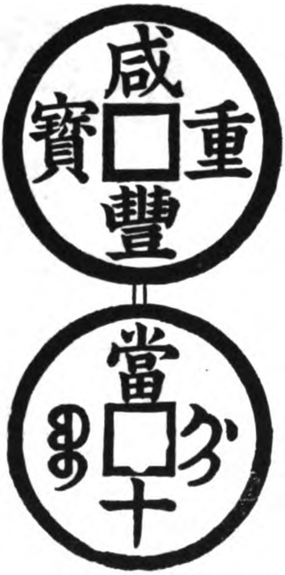

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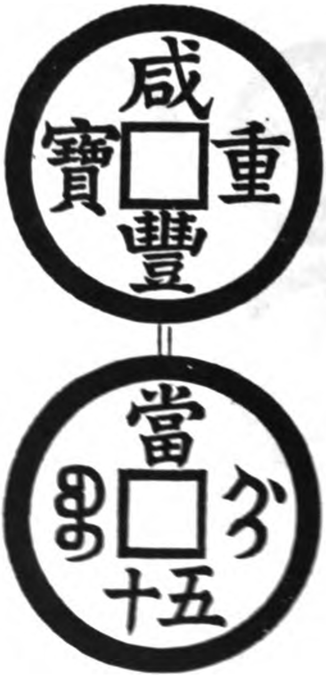

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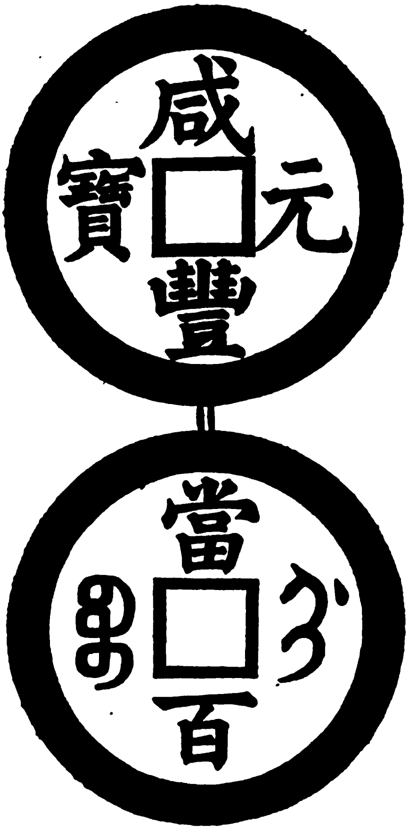

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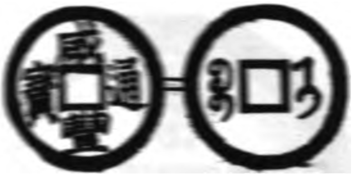

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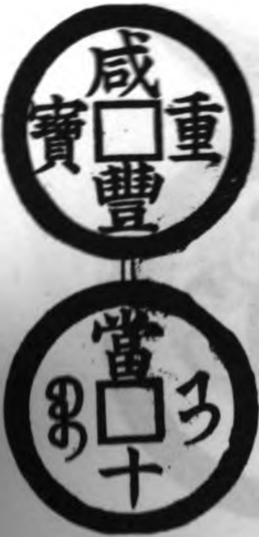

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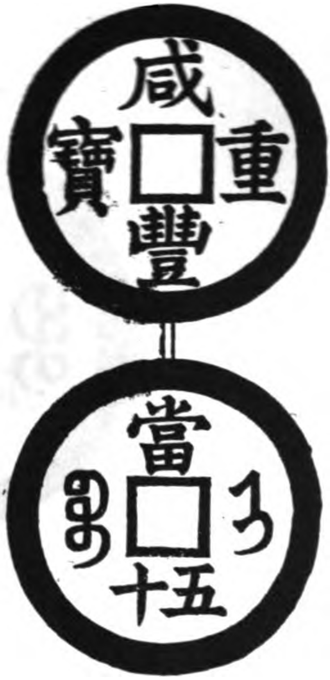

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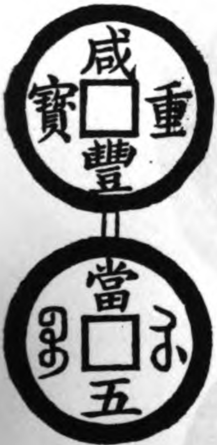

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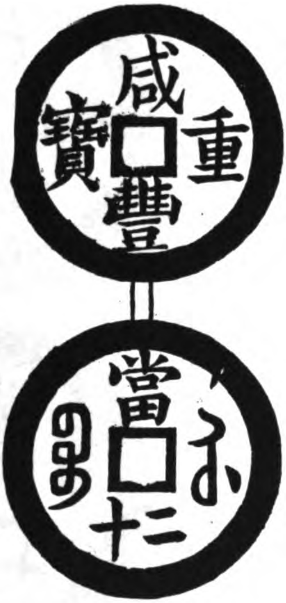

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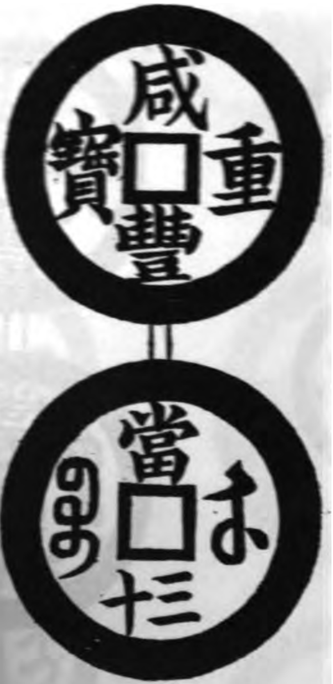

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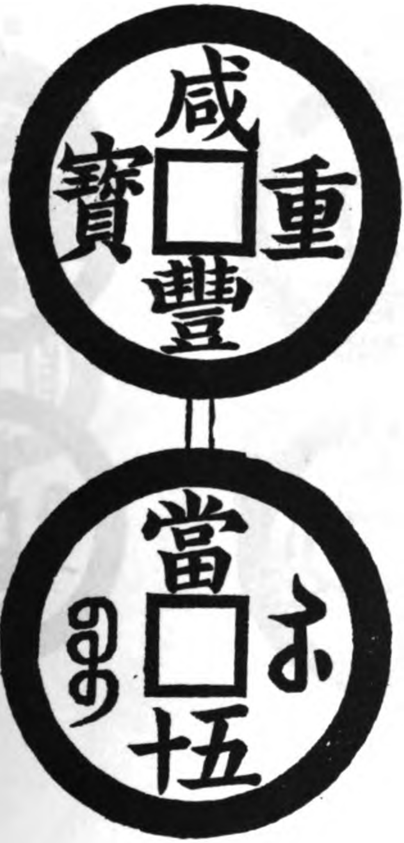

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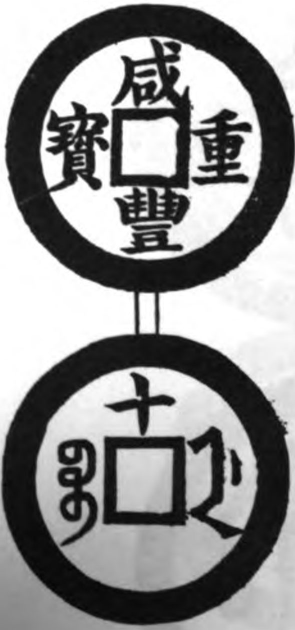

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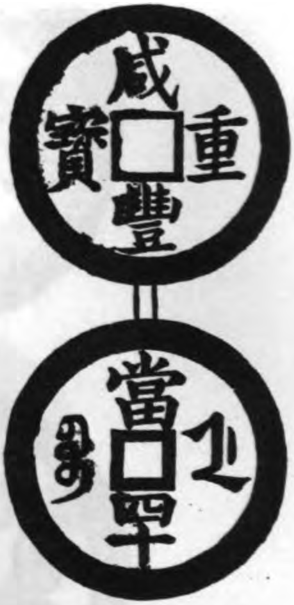

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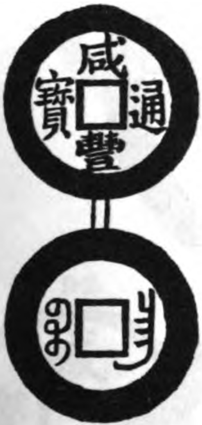

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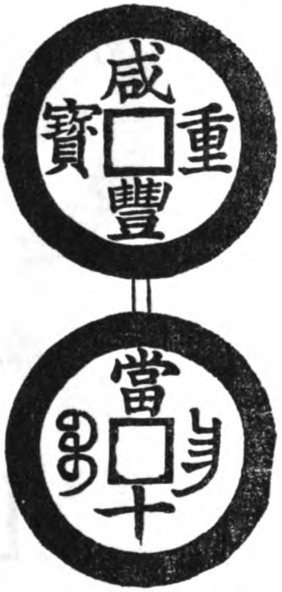

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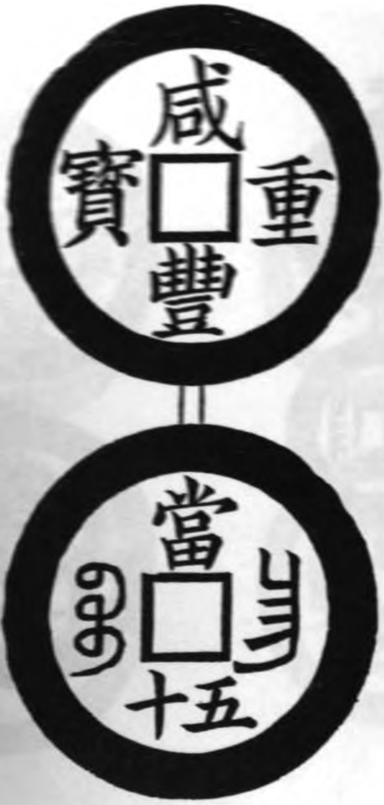

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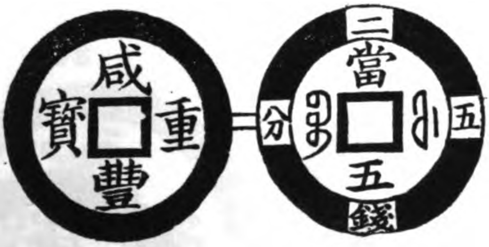

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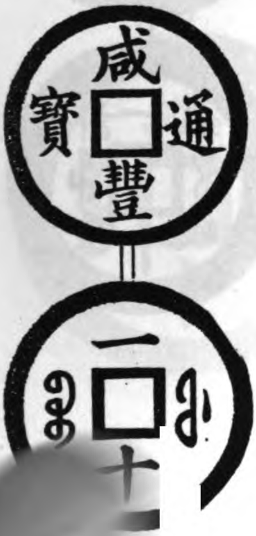

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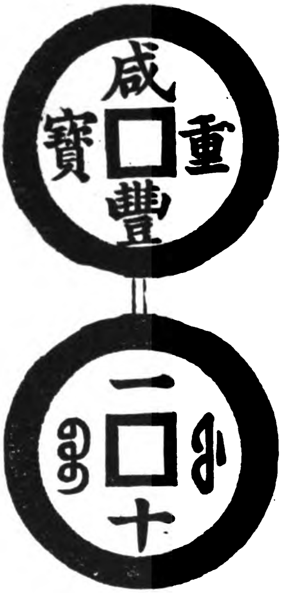

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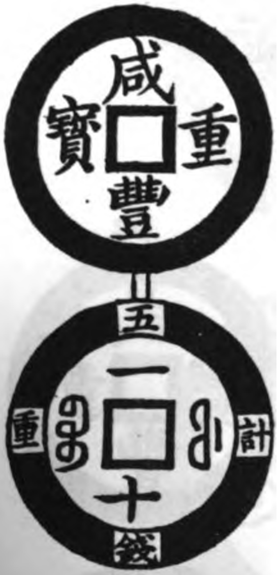

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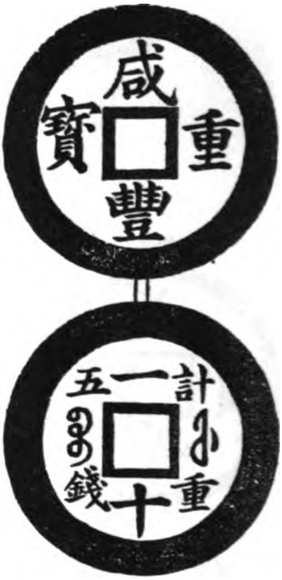

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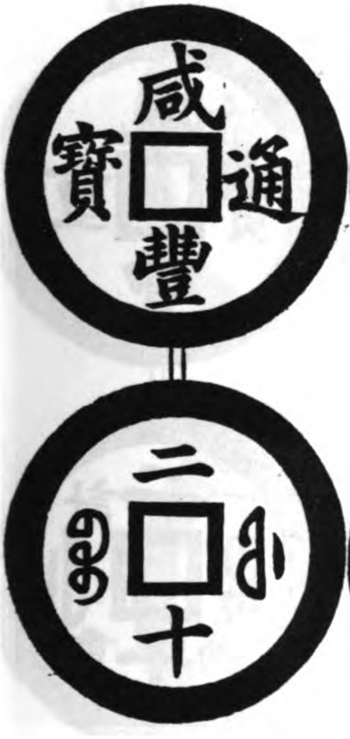

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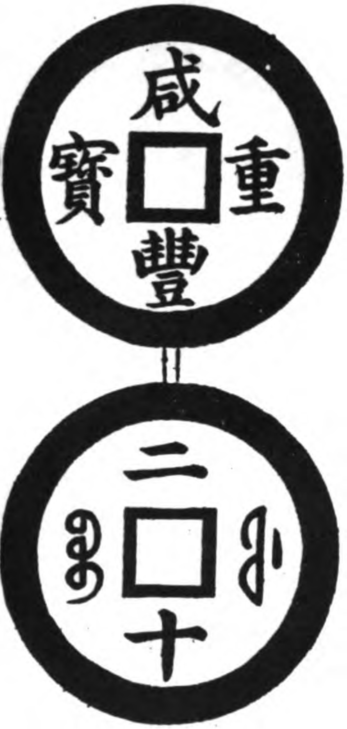

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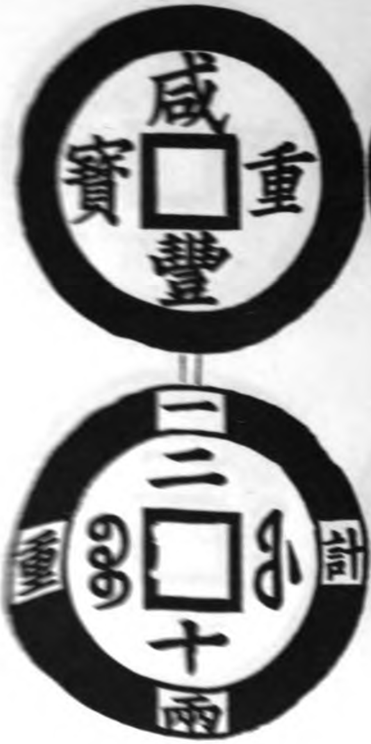

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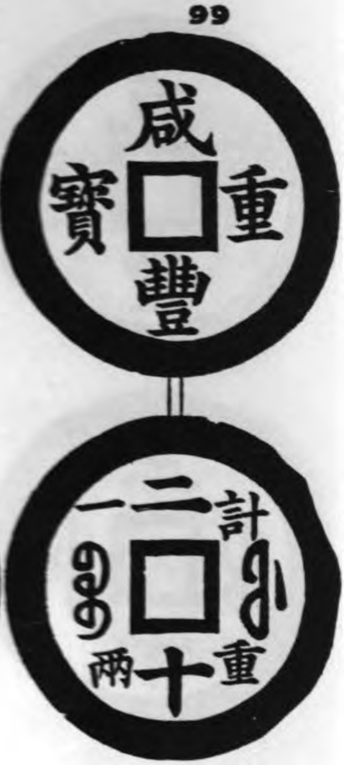

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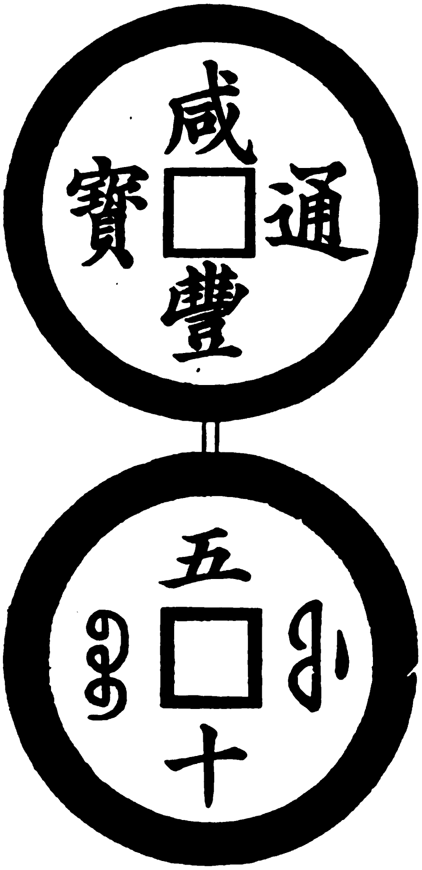

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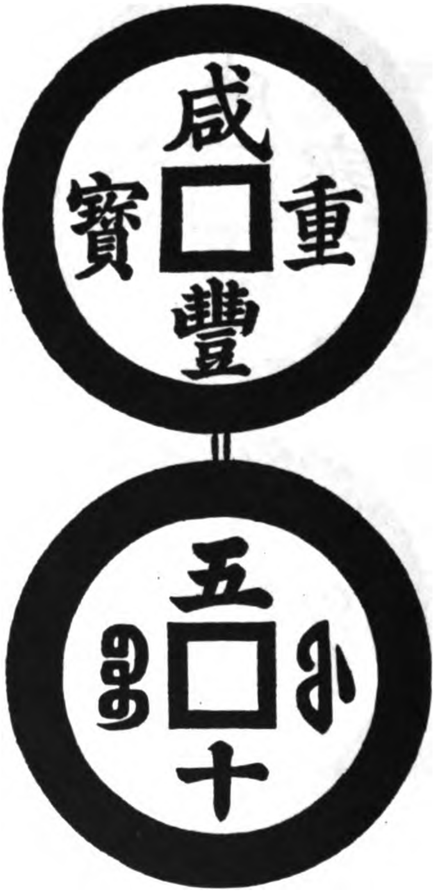

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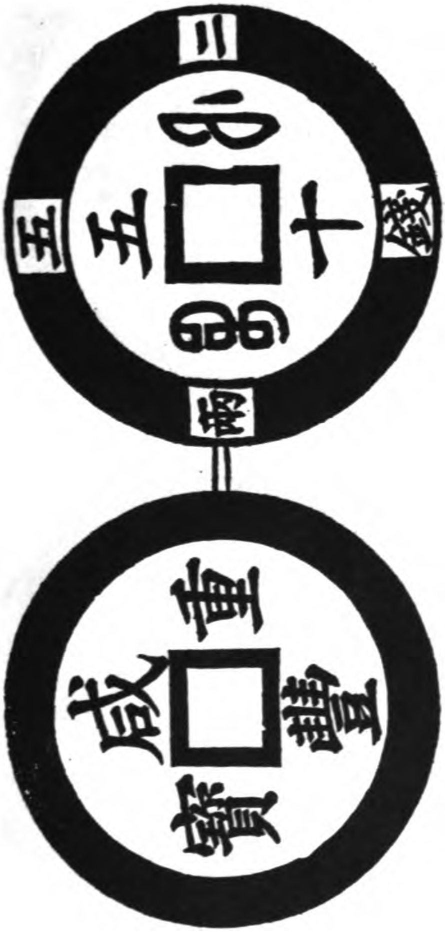

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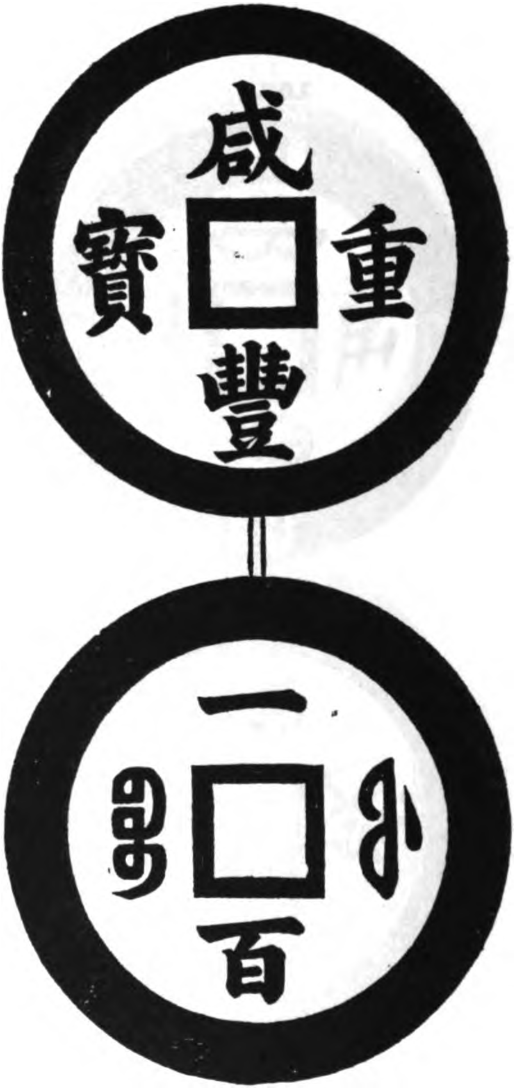

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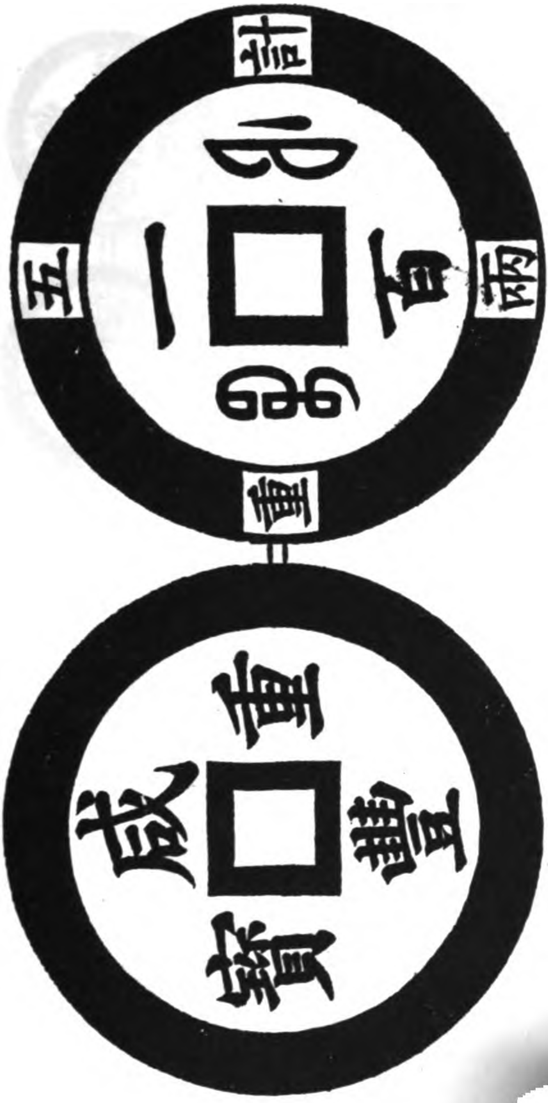

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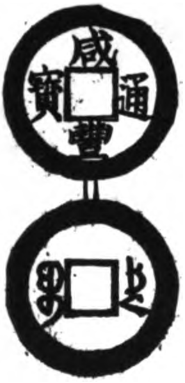

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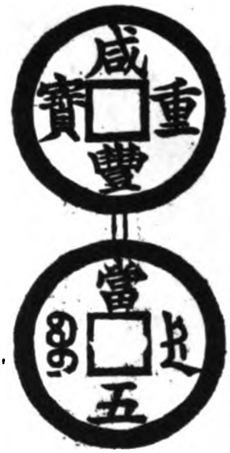

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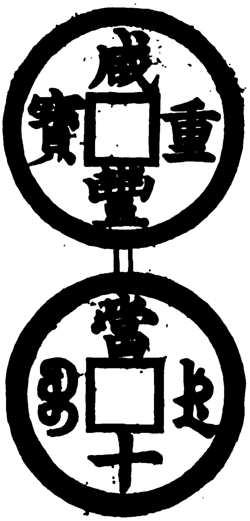

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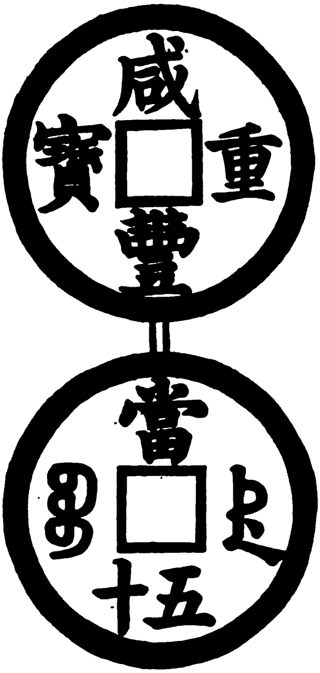

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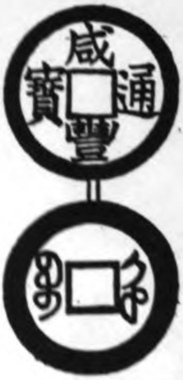

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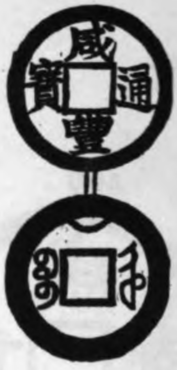

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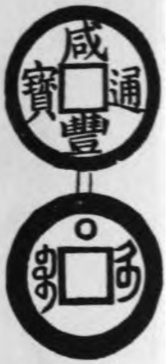

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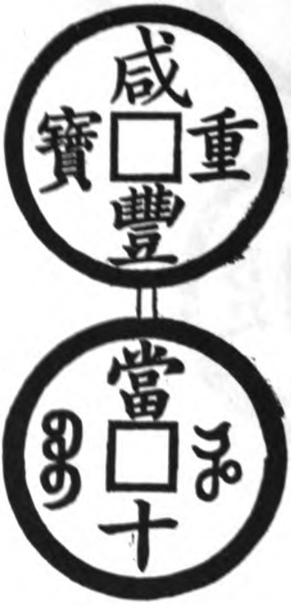

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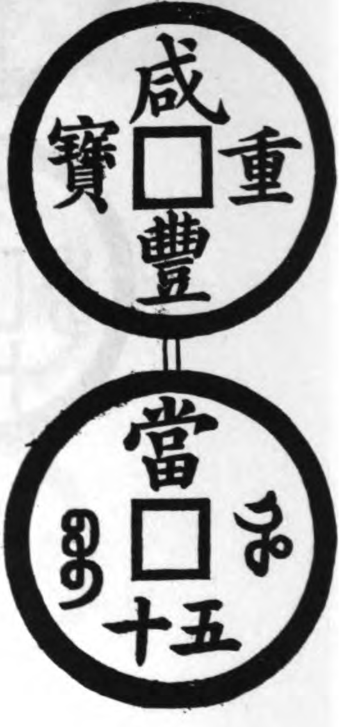

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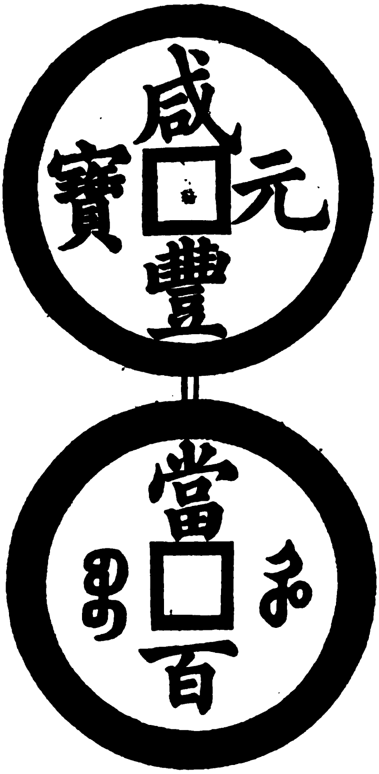

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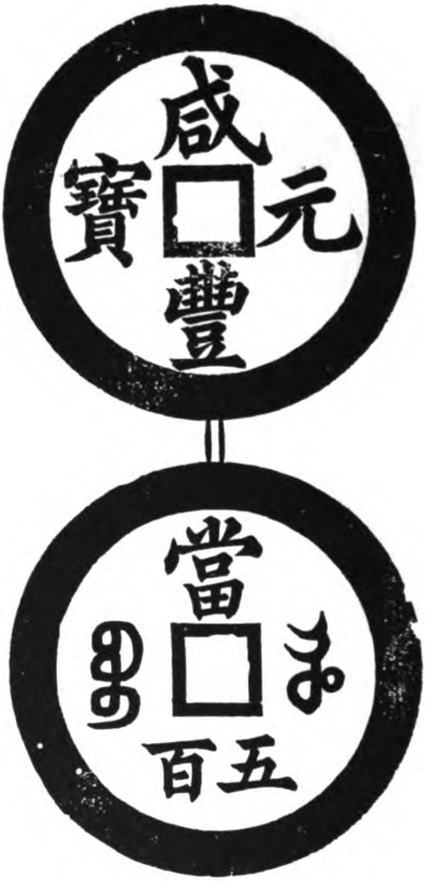

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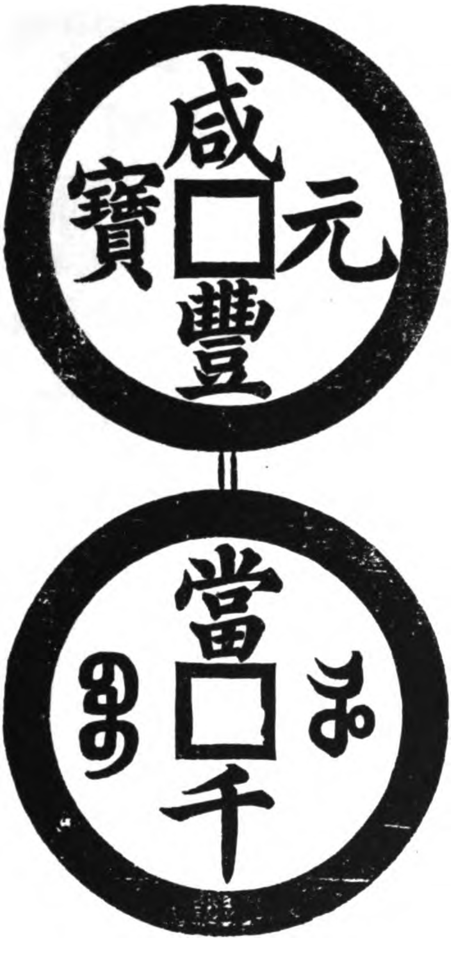

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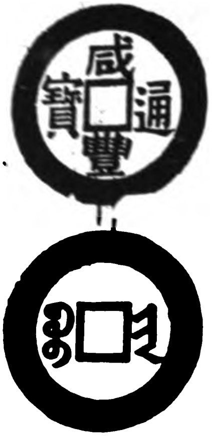

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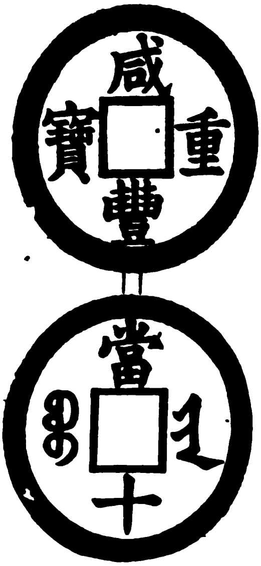

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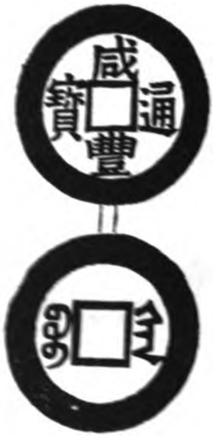

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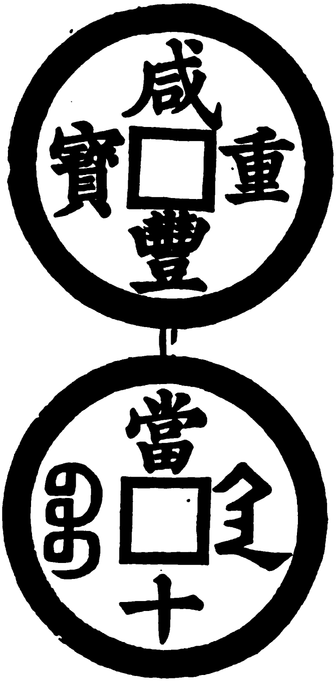

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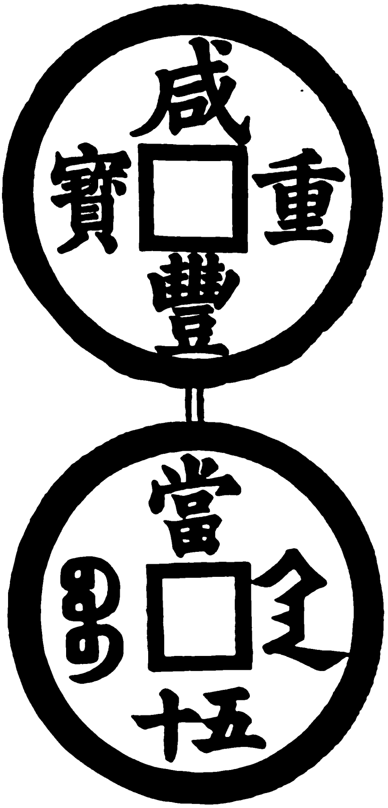

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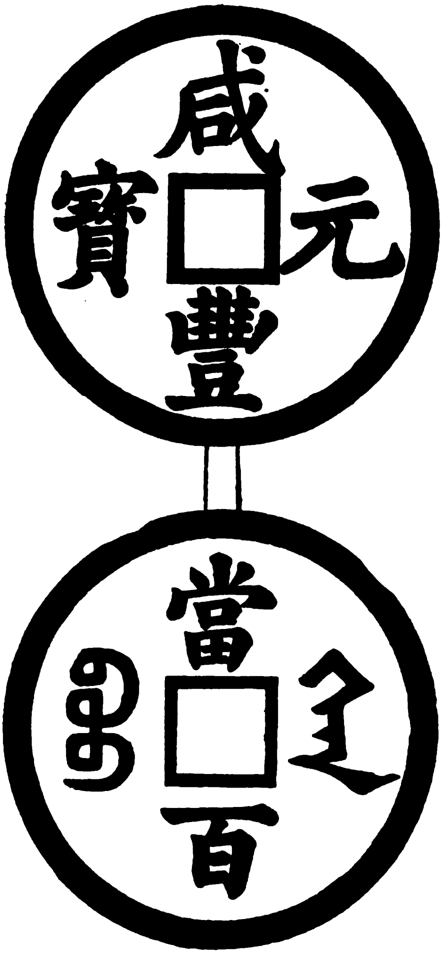

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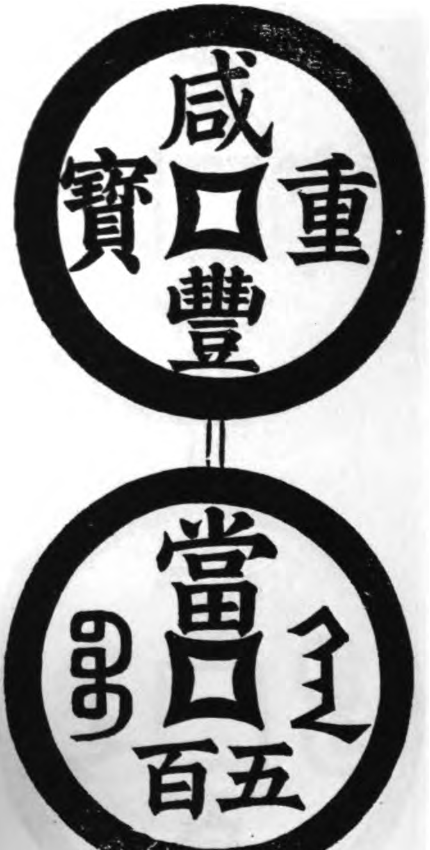

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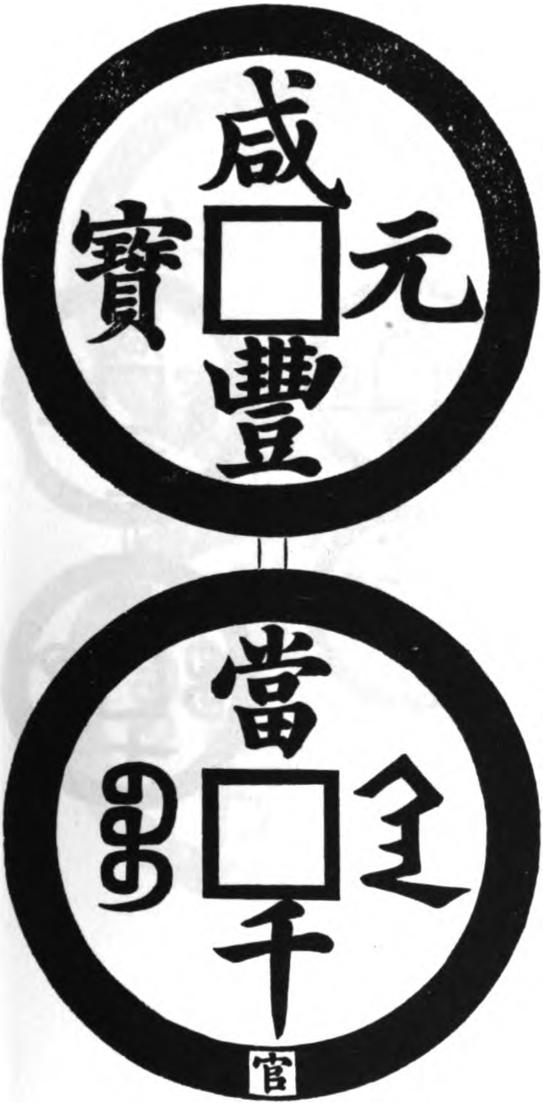

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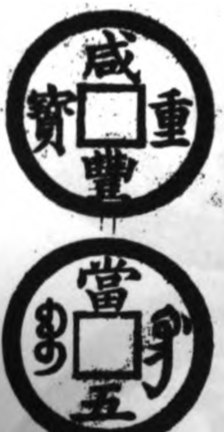

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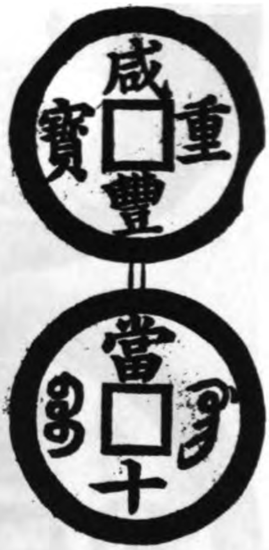

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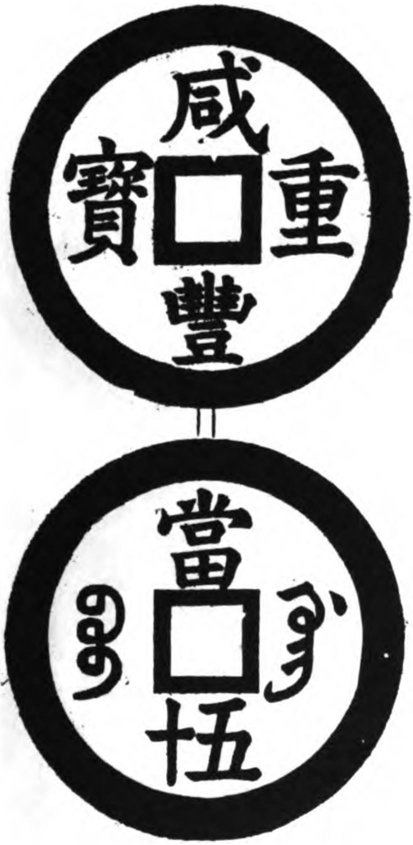

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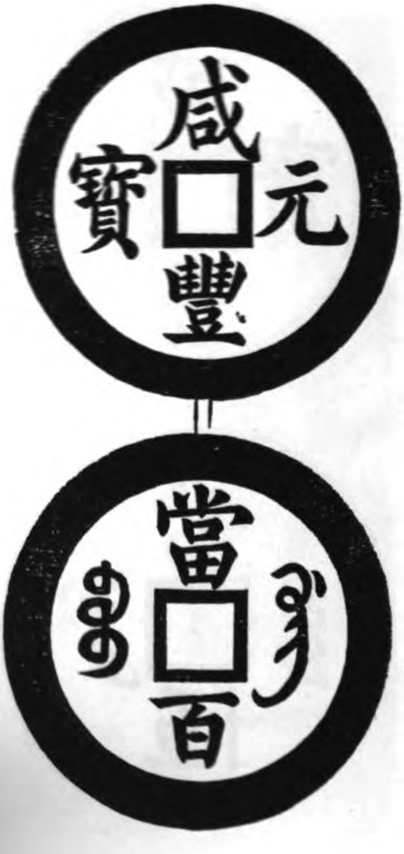

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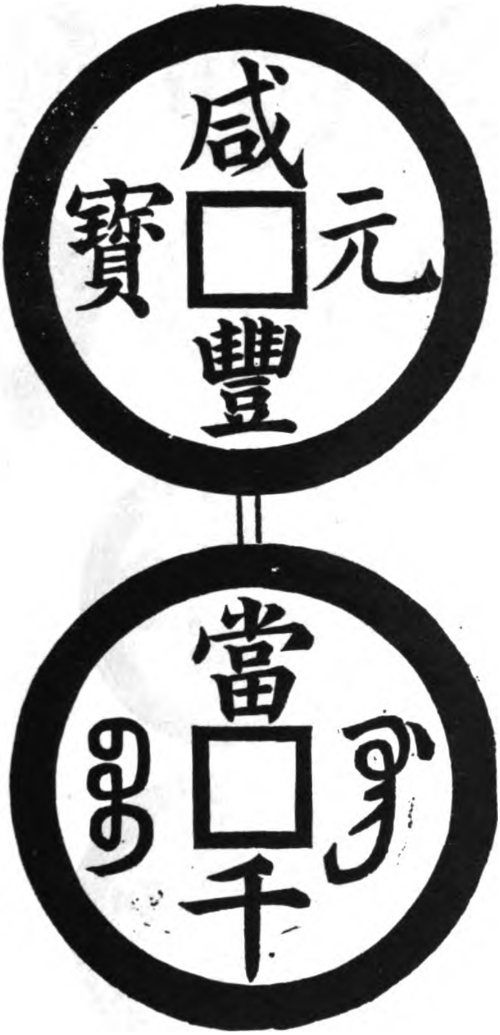

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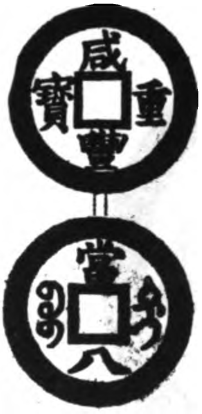

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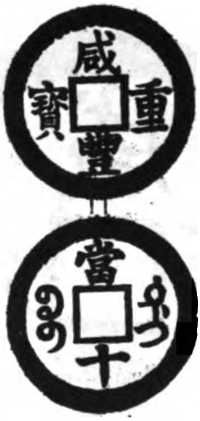

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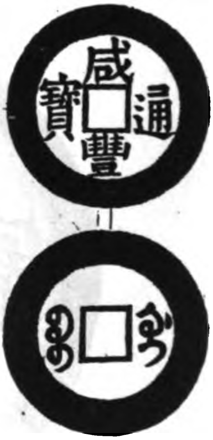

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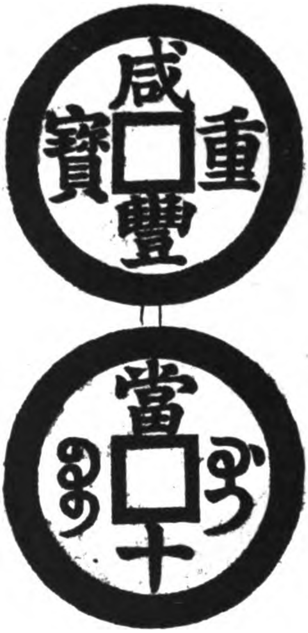

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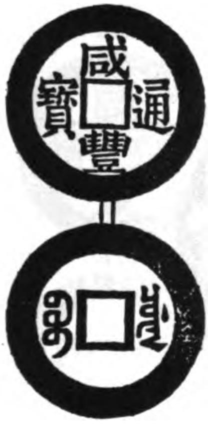

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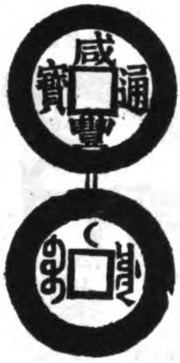

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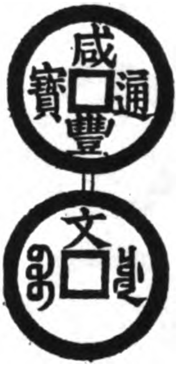

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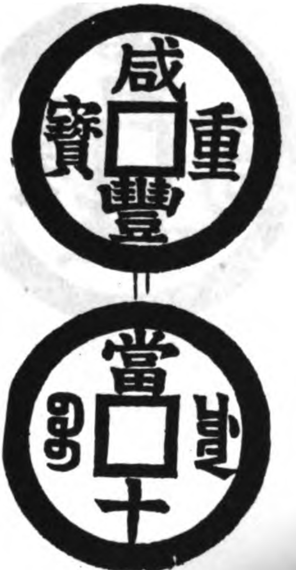

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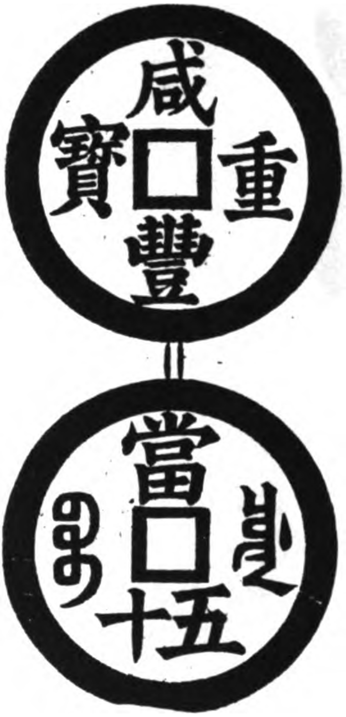

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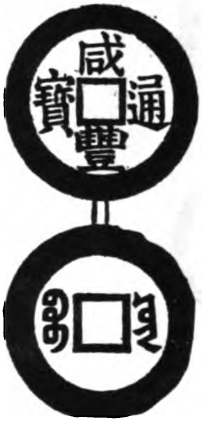

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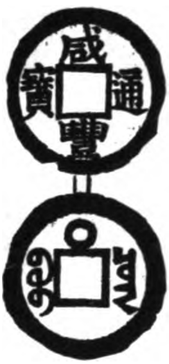

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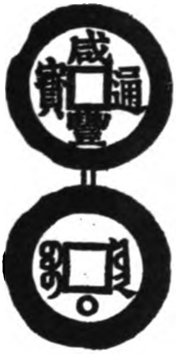

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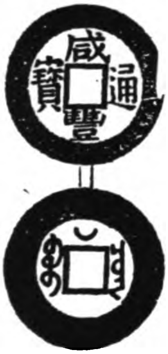

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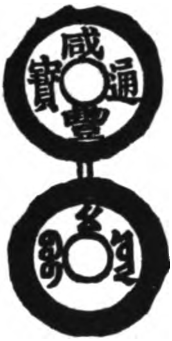

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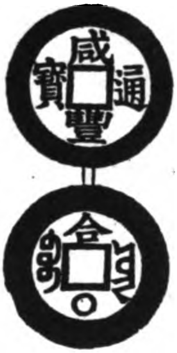

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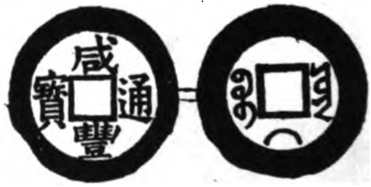

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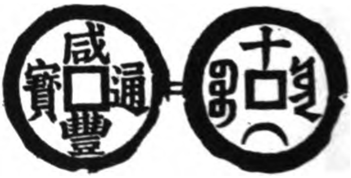

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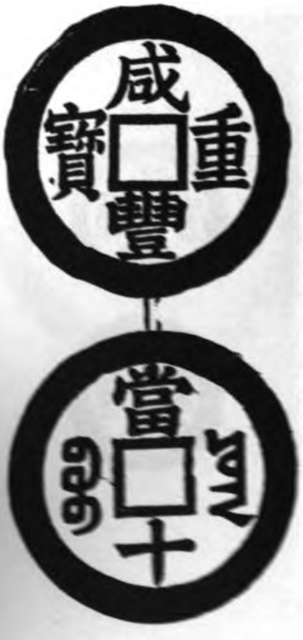

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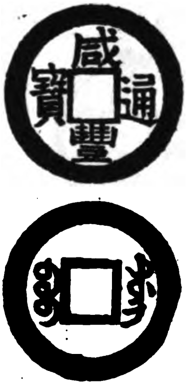

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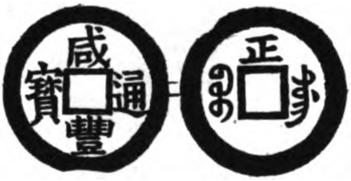

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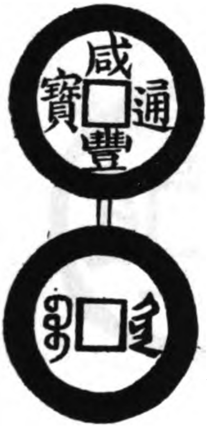

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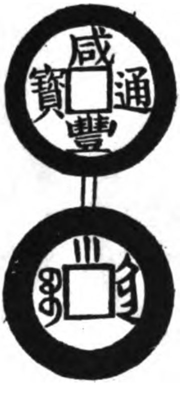

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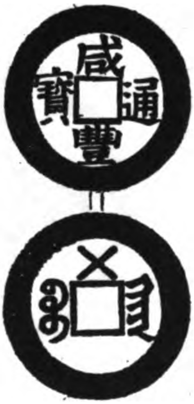

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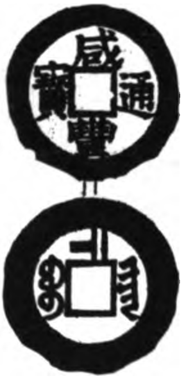

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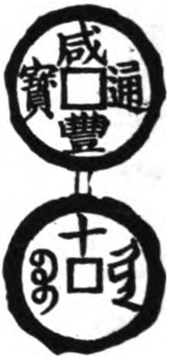

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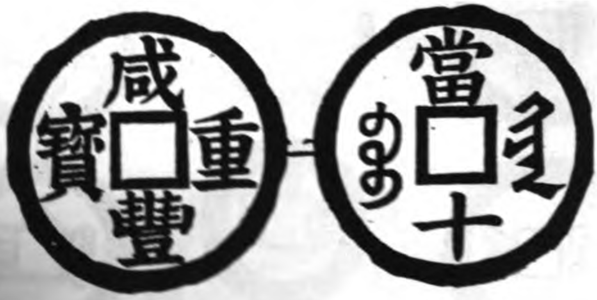

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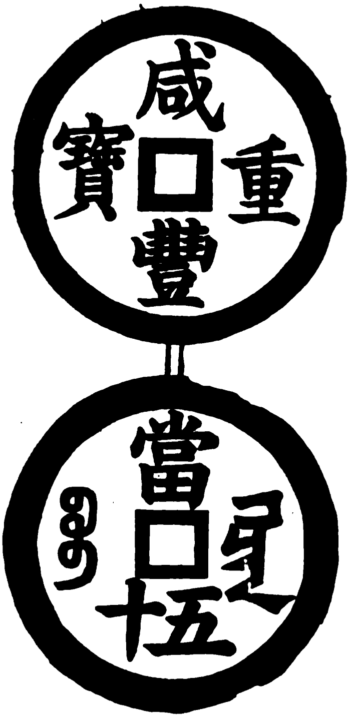

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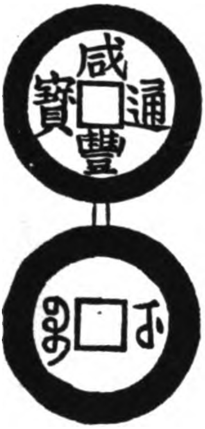

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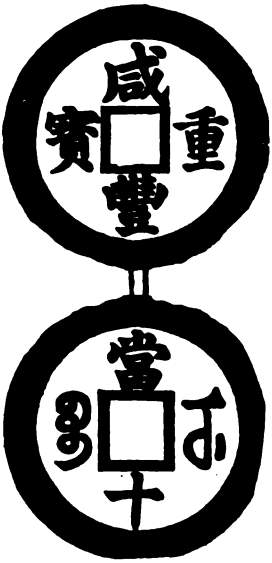

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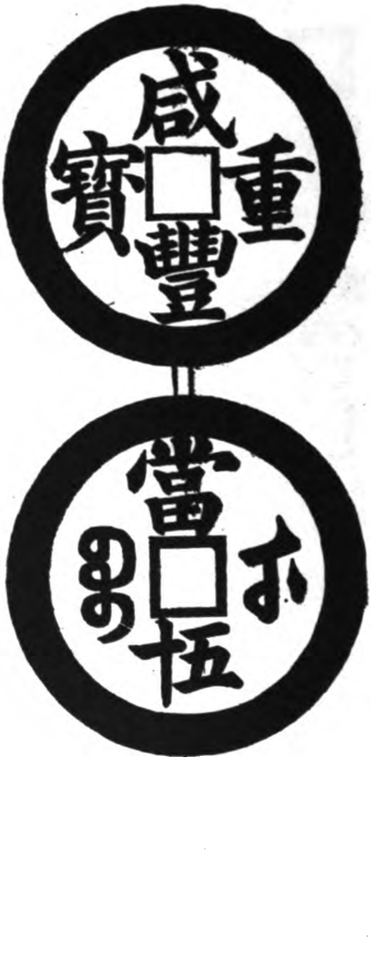

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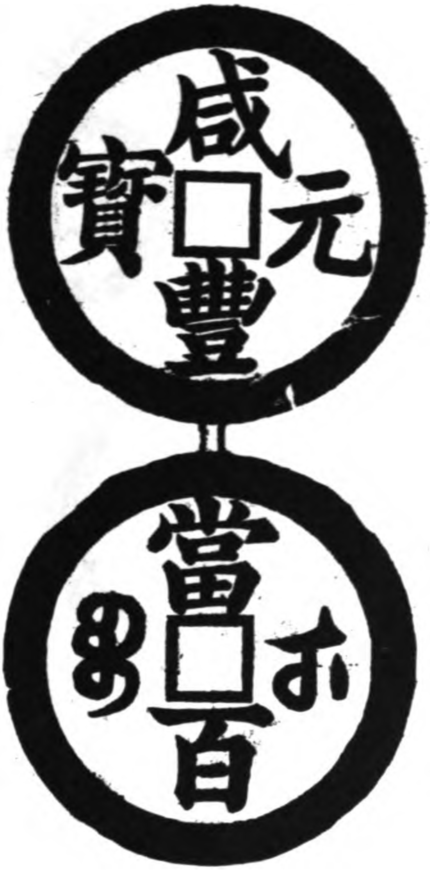

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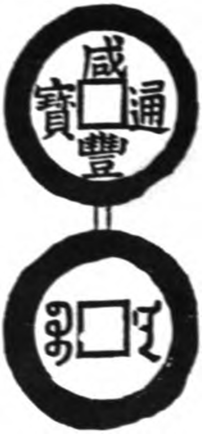

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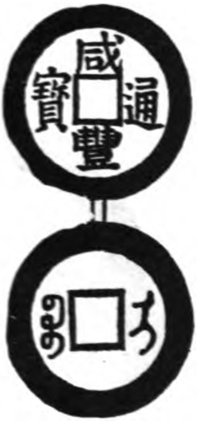

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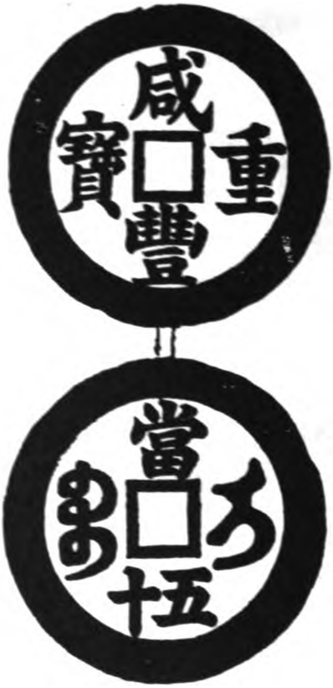

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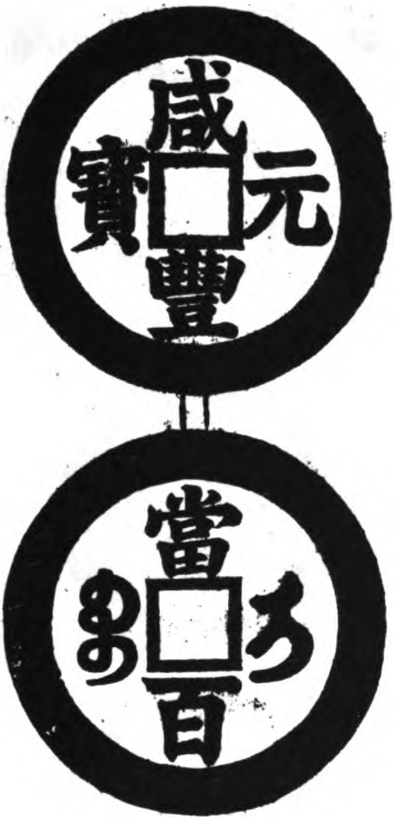

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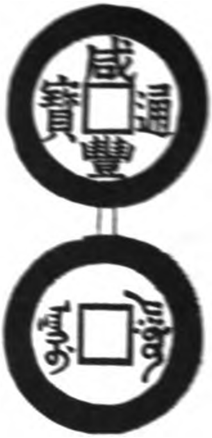

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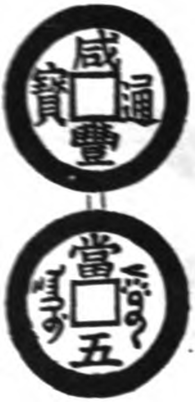

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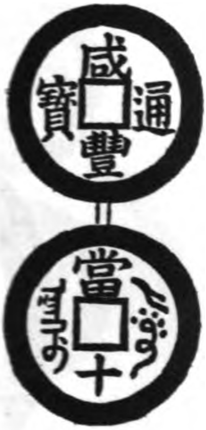

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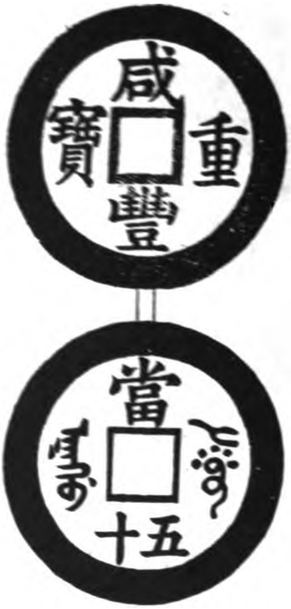

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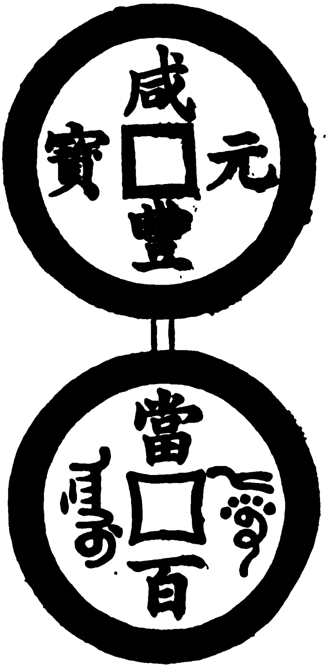

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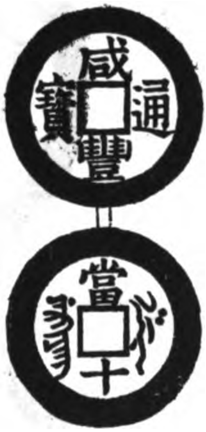

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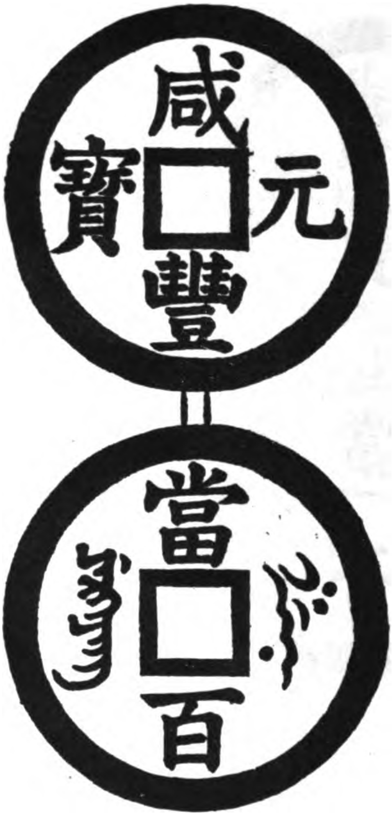

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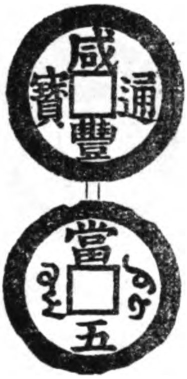

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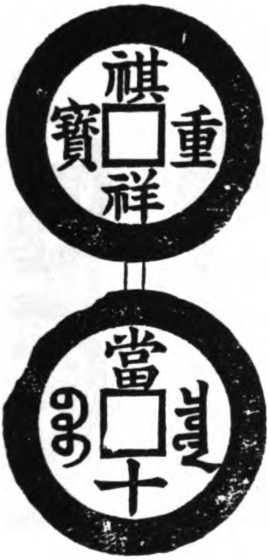

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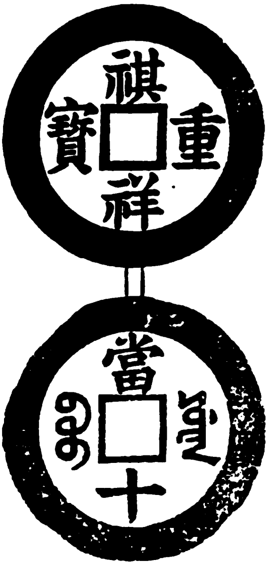

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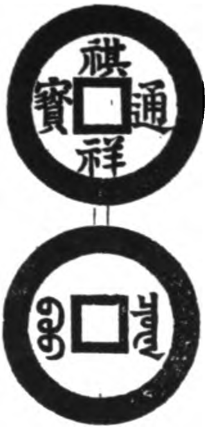

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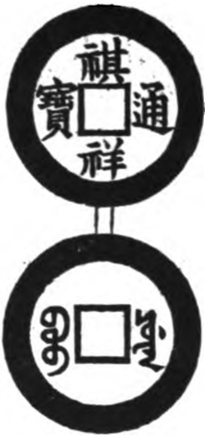

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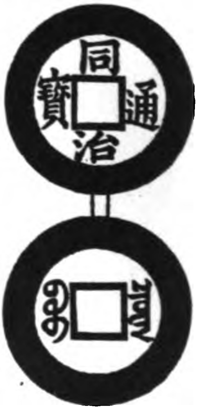

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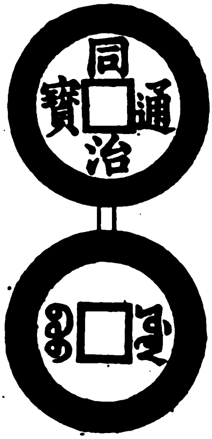

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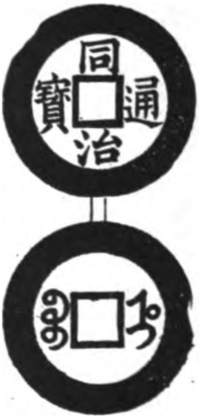

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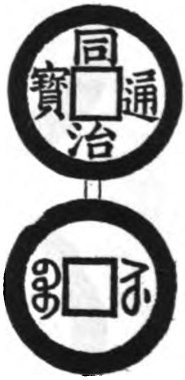

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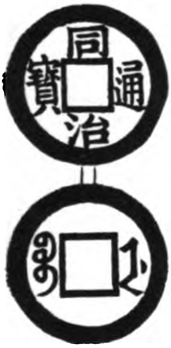

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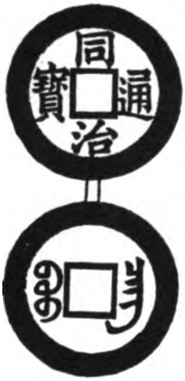

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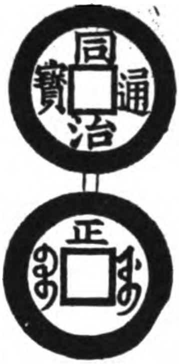

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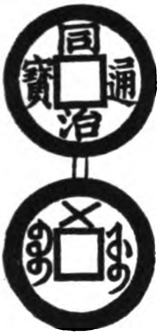

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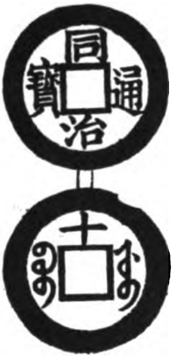

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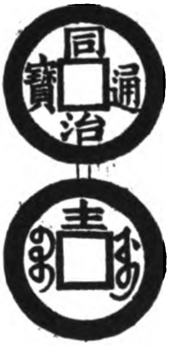

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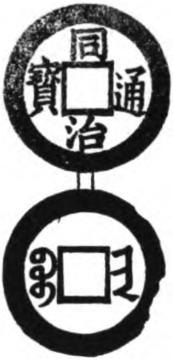

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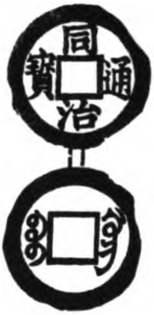

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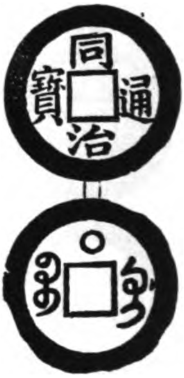

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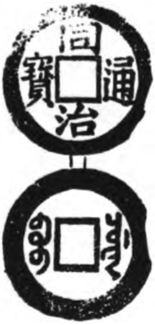

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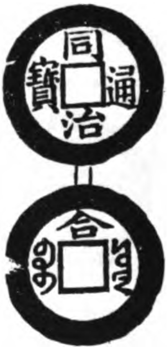

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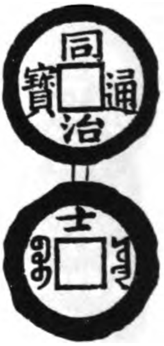

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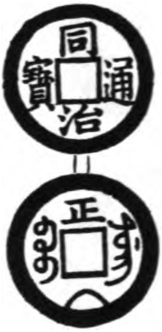

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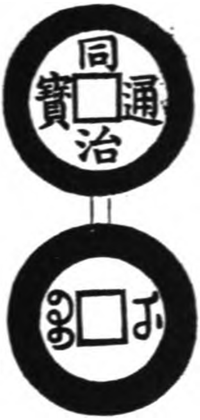

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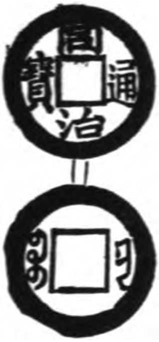

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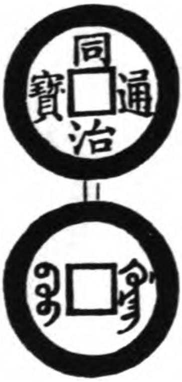

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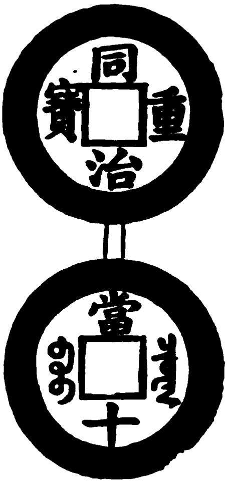

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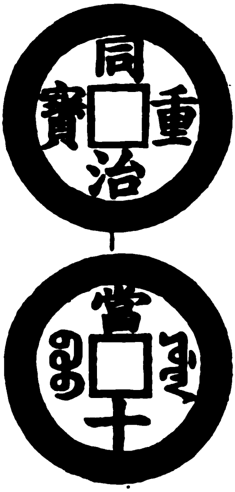

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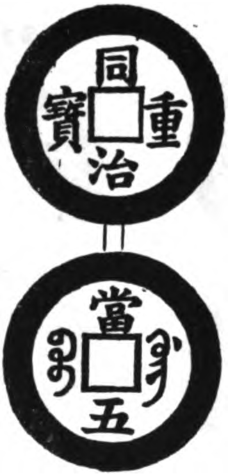

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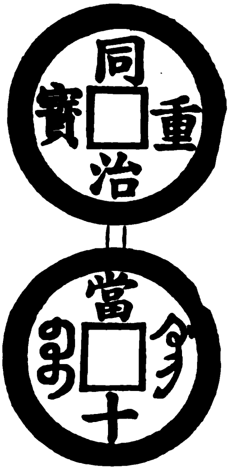

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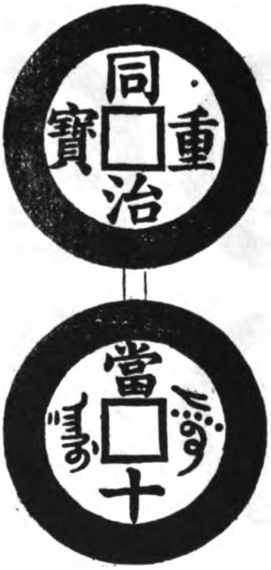

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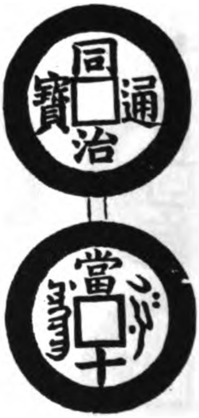

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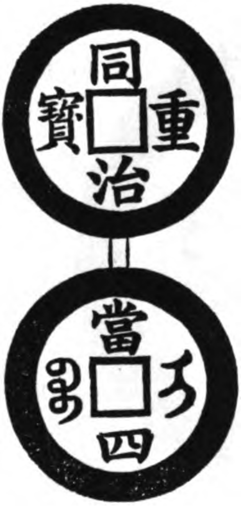

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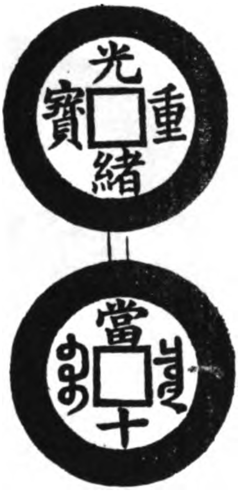

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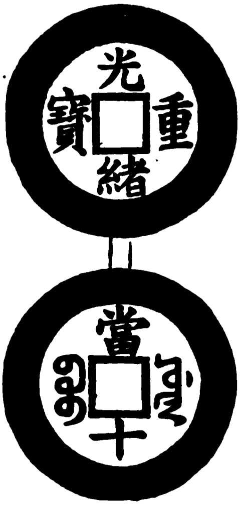

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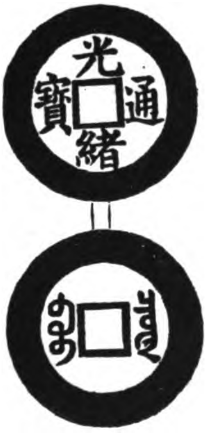

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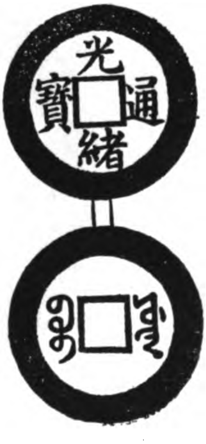

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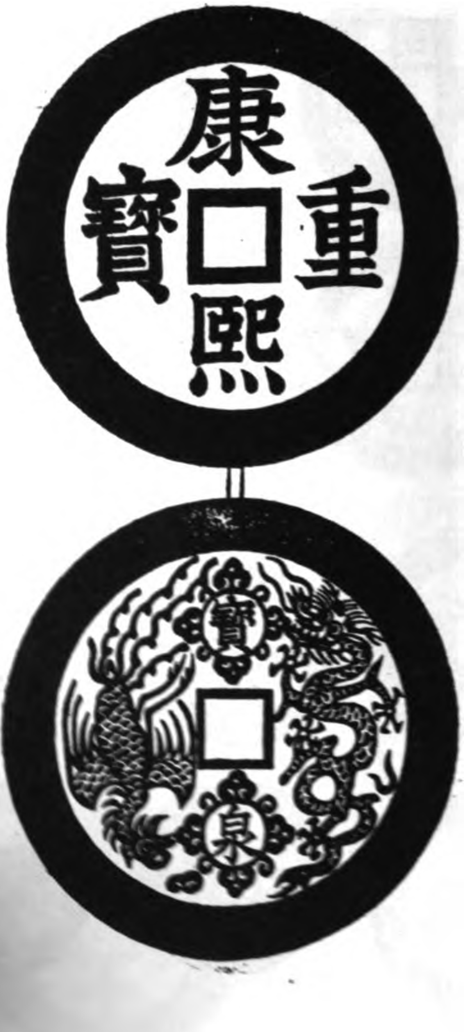

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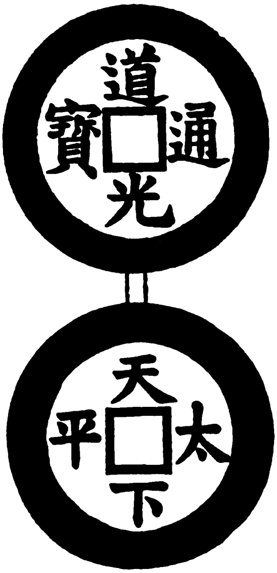

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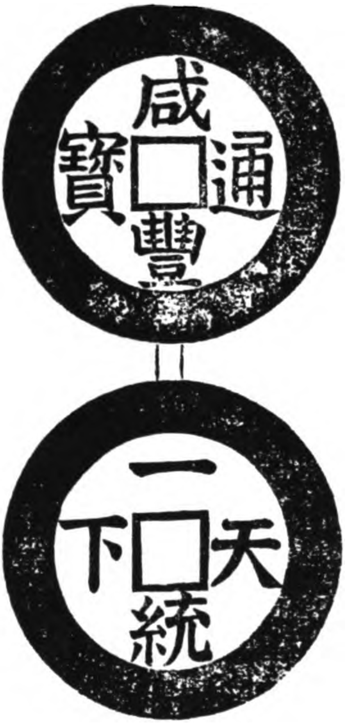

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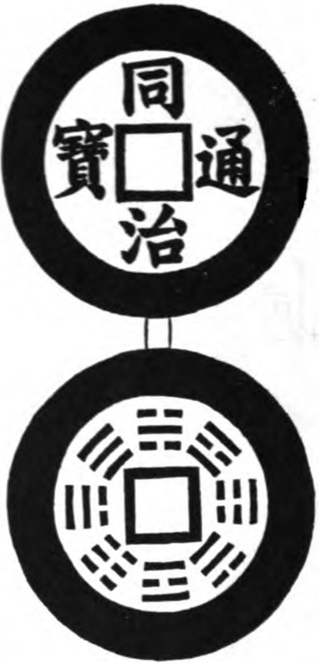

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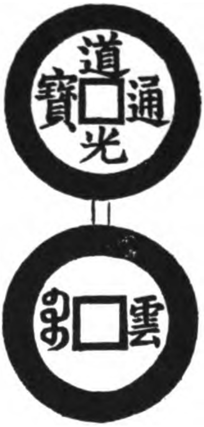

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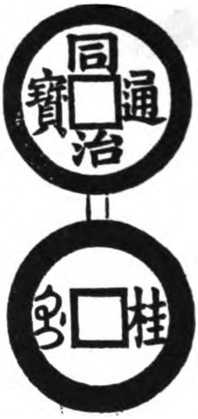

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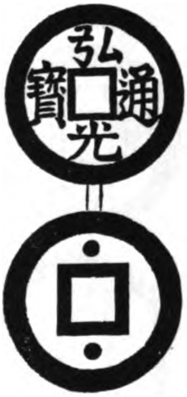

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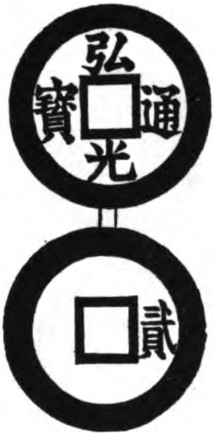

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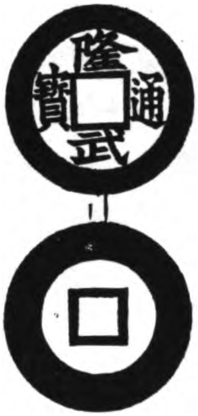

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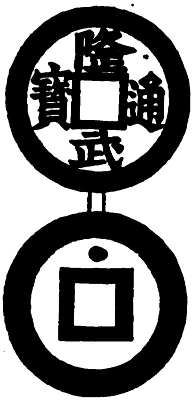

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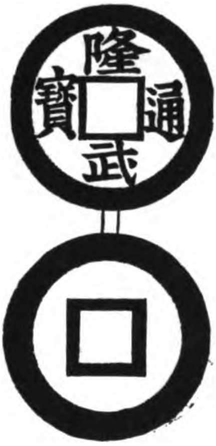

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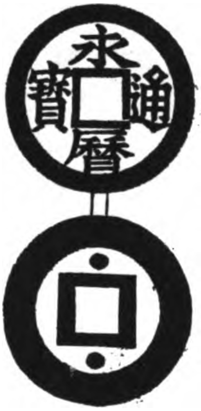

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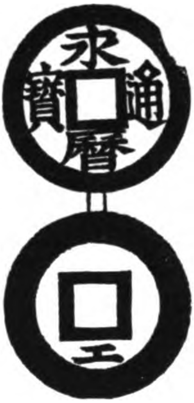

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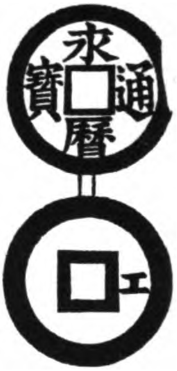

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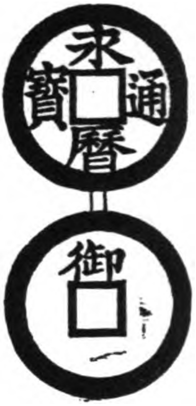

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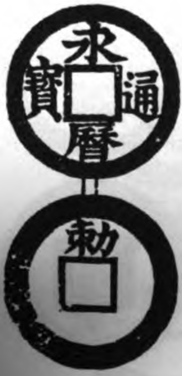

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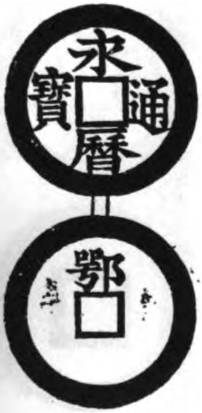

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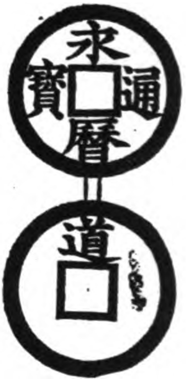

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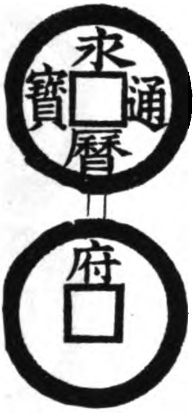

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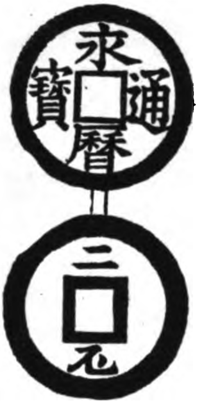

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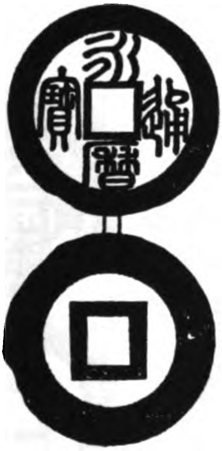

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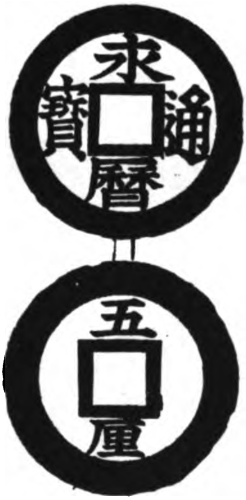

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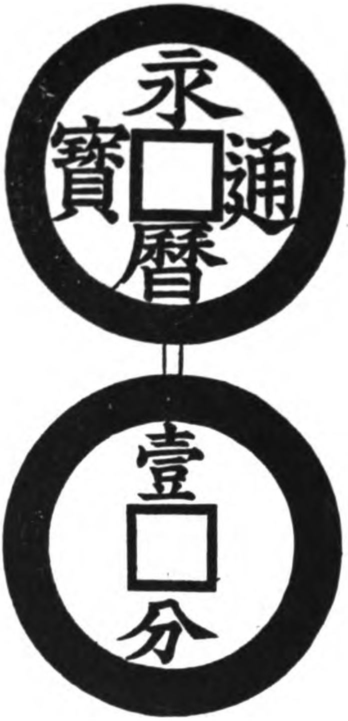

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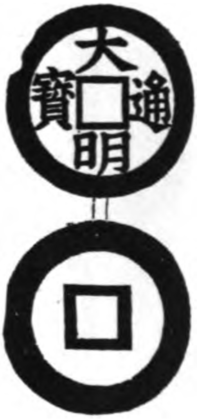

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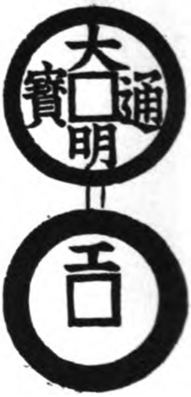

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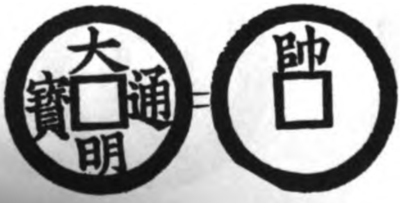

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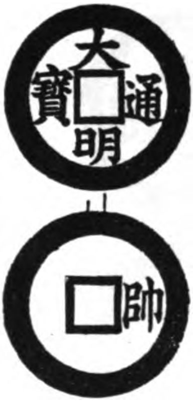

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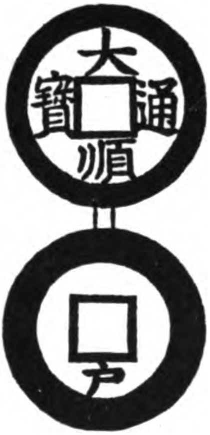

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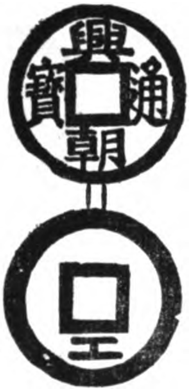

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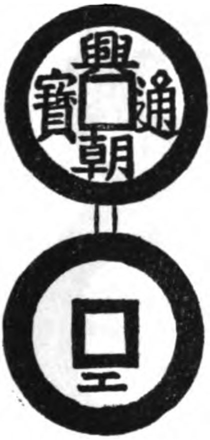

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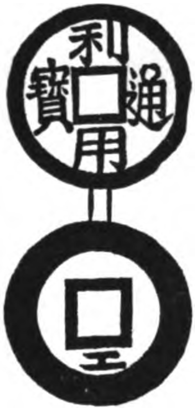

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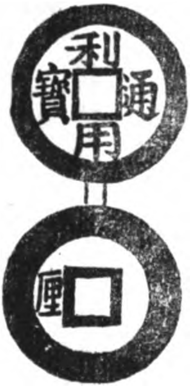

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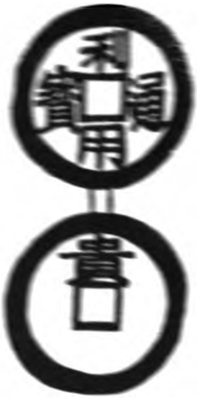

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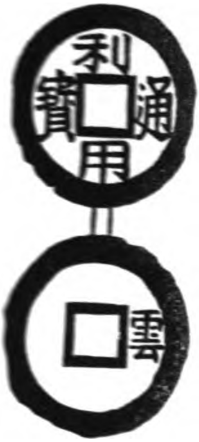

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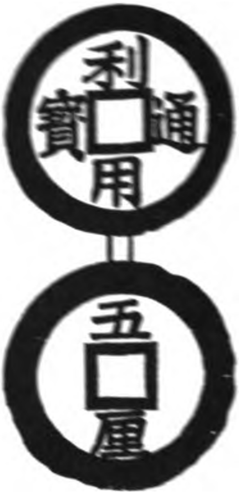

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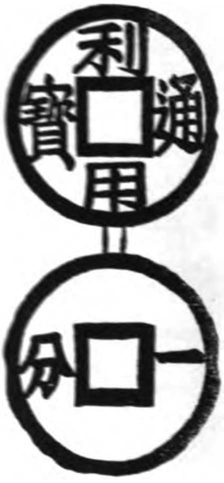

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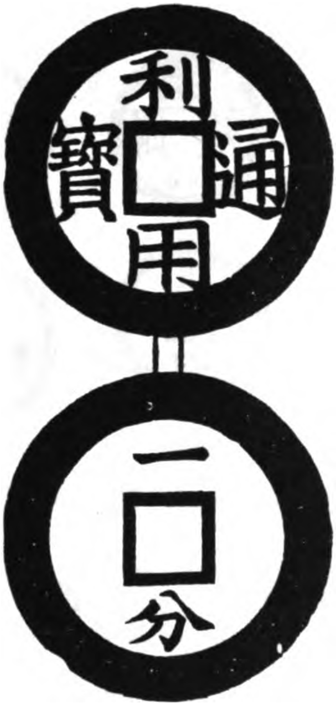

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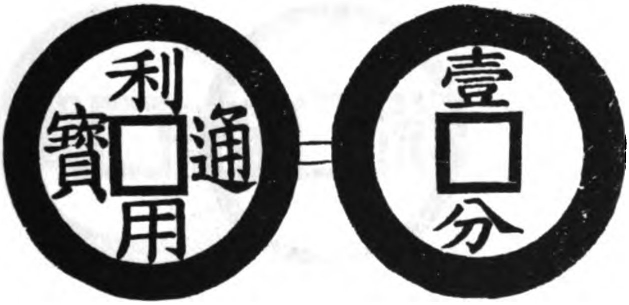

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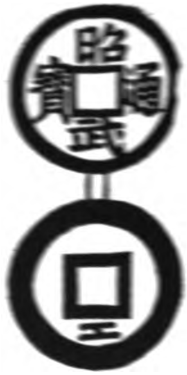

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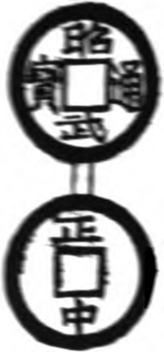

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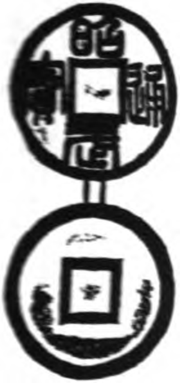

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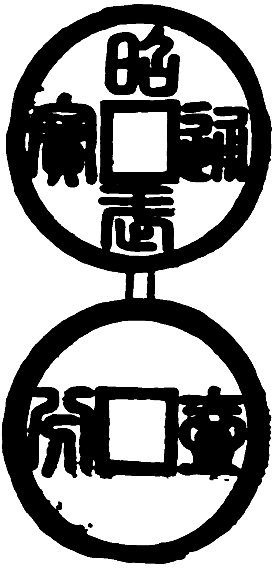

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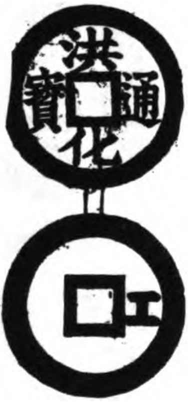

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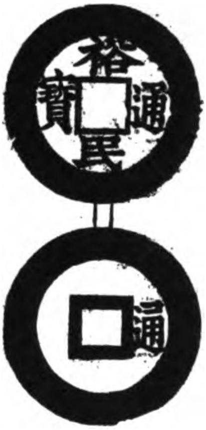

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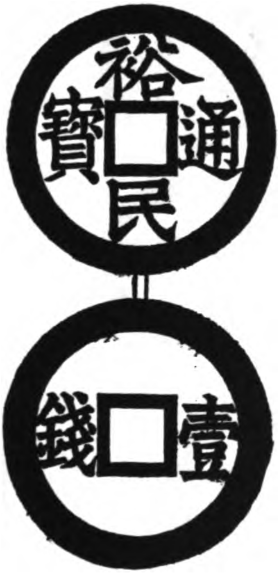

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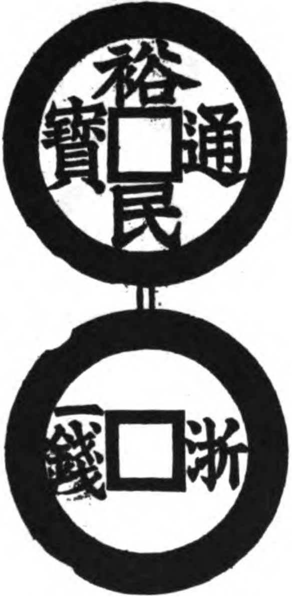

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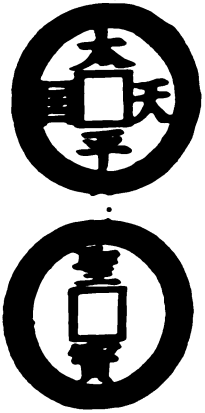

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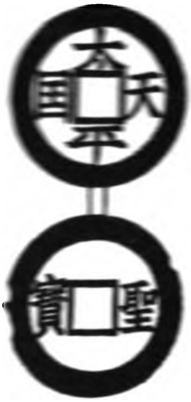

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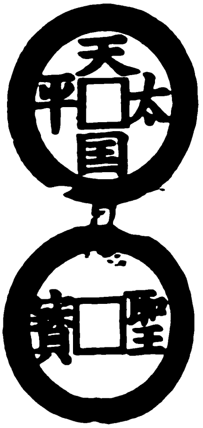

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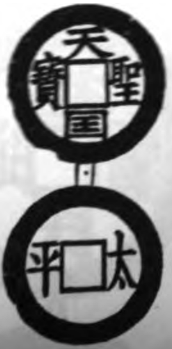

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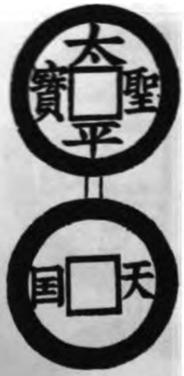

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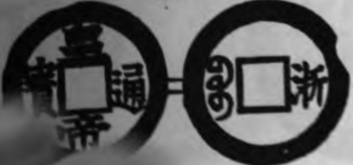

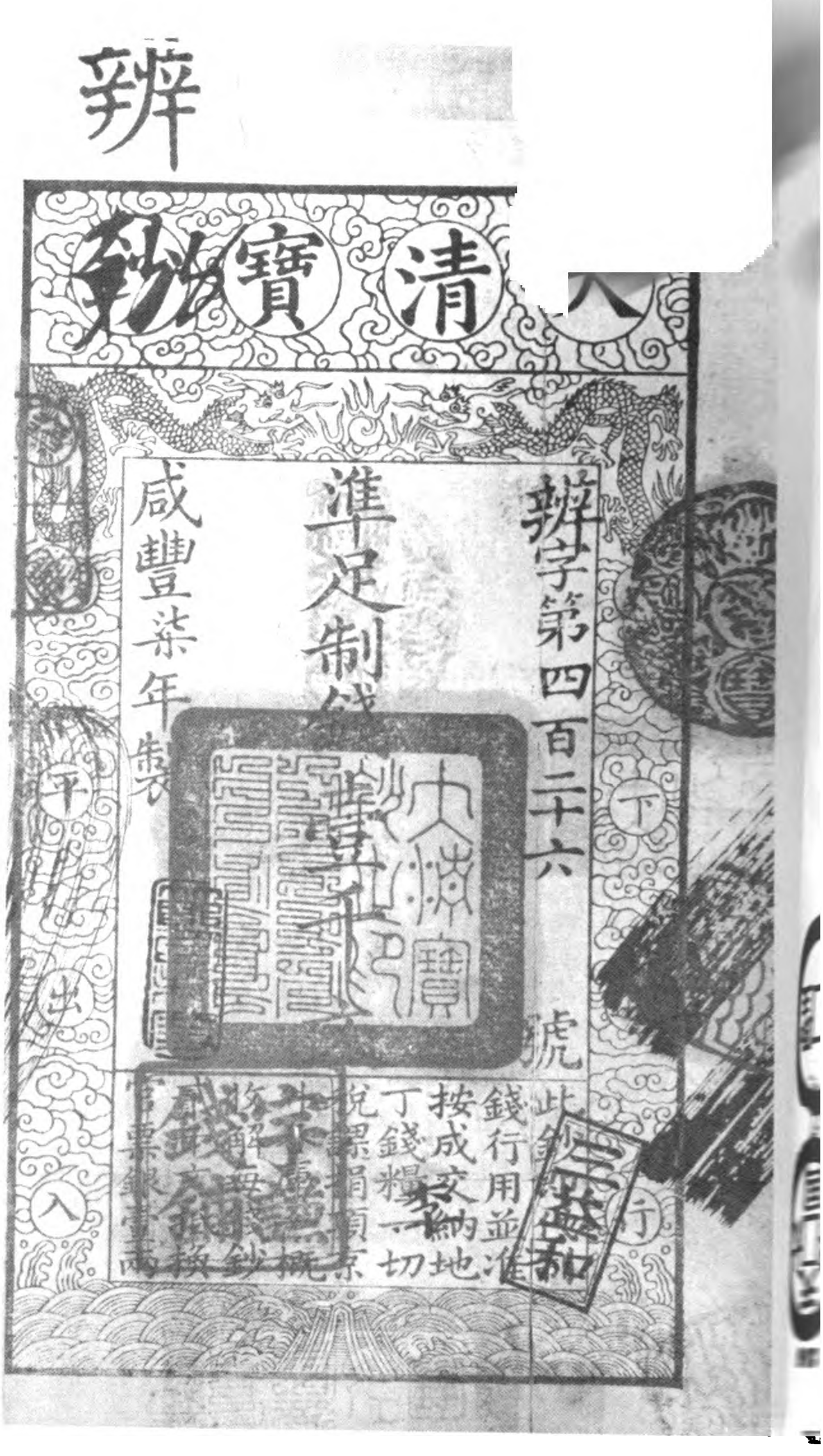

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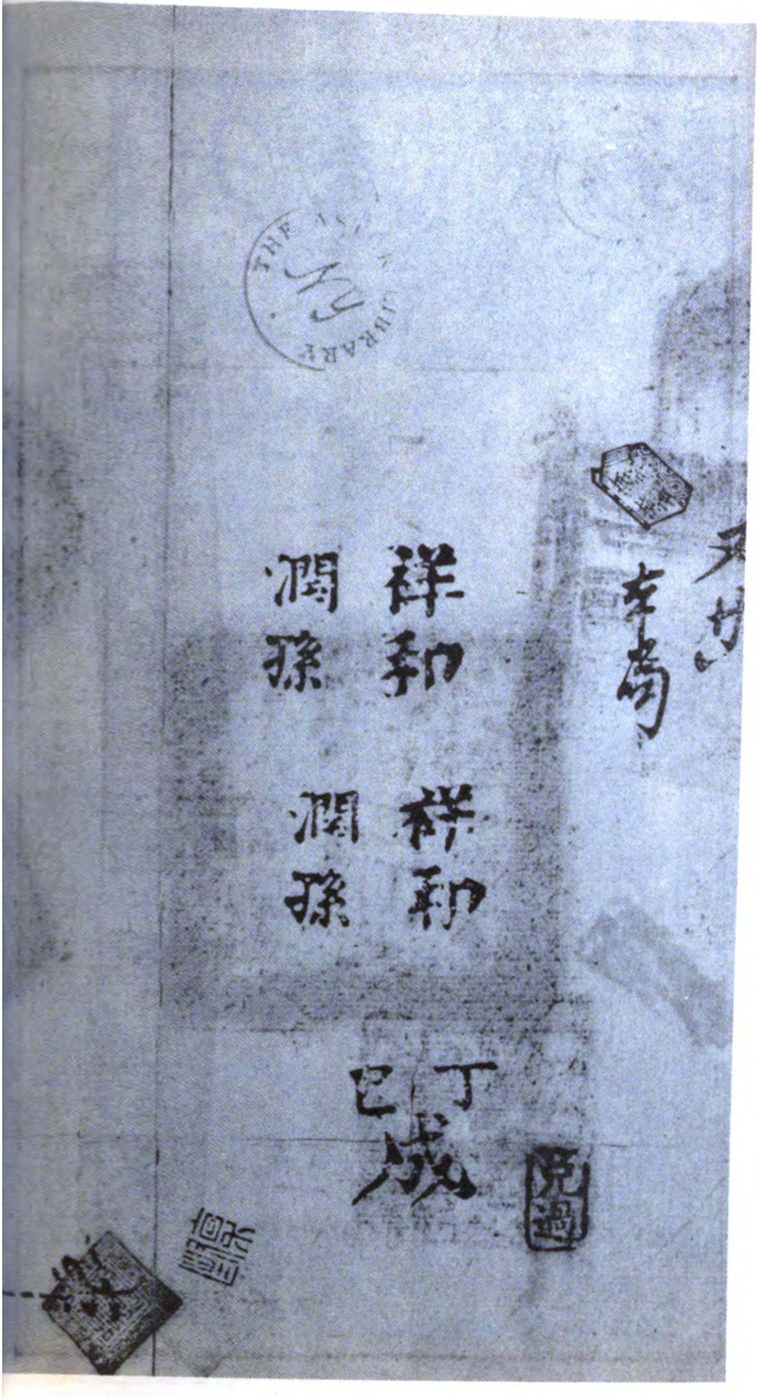

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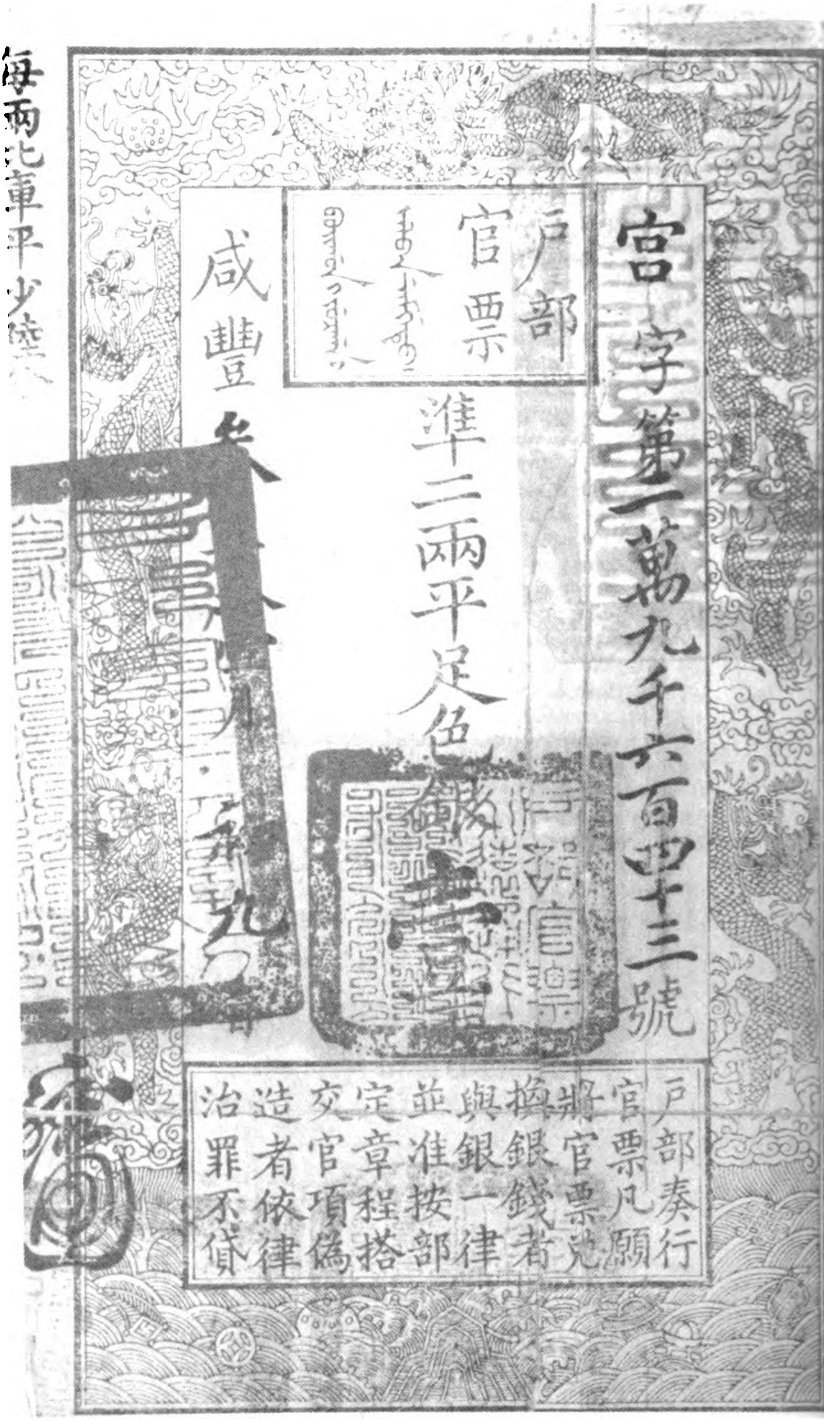

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ARTICLE III.

THE "NATURALISTIC" PHILOSOPHY OF CHINA.[*]

By Frederic H. Balfour. F.R.G.S.

IT occasionally happens that a sudden ray of clear and valuable light is thrown upon a long-disputed subject frmo a source the very existence of which was unsuspected, and the authority of which would certainly never have been allowed. Just as an accident may reveal what generations of scientific men have laboured in vain to discover: just as a rank outsider may win a race, or the dart, shot at a venture, hit the bull's-eye when trained archers have discharged a quiver-full of arrows without success,—so may some happy and spontaneous phrase, falling from one who approaches a topic of interest or difficulty for the first time, fresh and unencumbered by preconceptions or the dissertations of experts, embody in itself the kernel of the enigma, and make the whole thing promptly and for ever plain. And such a service has, I think, been lately rendered to the cause of philosophical research in China. An able American writer, whose recent work on "Oriental Religions" is, or ought to be, on the shelf of every reading man, gives to the Confucian school, for the first time, its true designation of Rationalist. Confucius was a Rationalist in every sense; his followers are Rationalists; his philosophy was altogether Rationalistic in its scope. The word is just the one we wanted, but which we never found; and its universal acceptation, from henceforth, can be only a matter of time. It is not only for supplying us with a just descriptive epithet for the orthodox philosophy of China, however, that we are indebted to Mr. Johnson. As soon as ever the term Rationalism is recognised as belonging to the system of Confucius, it will fall into deserved desuetude in that sphere where hitherto it has usurped another's right. No word could, in my opinion, be more inappropriate, or more unhappily selected, as applied to the philosophy of Lao Tsze. That the character *Tao* 道 may be properly translated "reason" in certain instances, I do not deny. That it is an apt equivalent for λογος in the Johannine sense of the word appears generally allowed. For the rendering of it by "way" there are both etymological and philosophical recommendations which may not be overlooked. But that none of these is the true and actual meaning of the word in its esoteric sense I hope to show in the present paper; submitting, at the outset, that no fitter illustration could be offered of the fatality attending servile adherence to a literal system of translation than the rendering, hitherto in force, of Reason. The letter killeth; and in the present instance it has killed all sense and meaning out of the word it was attempting to explain.

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[*] Read before the Society on the 21st September, 1880.

The position we take up, therefore, is a very simple one. To put it algebraically, *Tao* is the *x*, or unknown quantity that we have to find. And the first thing to be done is to see what is predicated of this mysterious Thing; how it is described; with what attributes it is credited; where it is to be found; whence it sprang, how it exists, and what its functions are. Then we may find ourselves in a position to discover what it is that answers to these particulars, and profanely to give a name to that which its preachers themselves declared must be for ever nameless.

We are told that it existed before the time which had no beginning had begun. Chuang Tsze says that there never was an epoch when it was not. Lao Tsze affirms that it existed before God Himself. It is all-pervasive; there is nowhere where it is not found. It fills the Universe with its grandeur and sublimity; yet it is so subtle that it exists in all its plenitude in the tip of an autumn hair. It causes the sun and moon to revolve in their appointed orbits, and gives life to the most microscopic insect. Formless, it is the source of every form we see; inaudible, it is the source of all the sounds we hear; invisible, it is that which lies behind every external object in the world; inactive, it produces, sustains, and regulates every phenomenon which exists in all the spheres of being. It is impersonal, passionless; working out its appointed ends with the remorselessness of Fate, yet overflowing in benevolence to all. "What is *Tao?*" exclaims Huai-nan Tsze. "It is that which supports Heaven and covers Earth; it has no boundaries, no limits; its height cannot be measured, nor its depth fathomed; it enfolds the Universe in its embrace, and confers visibility upon that which of itself is formless ....

It fills all within the Four Points of the Compass; it contains the Yin and Yang; it holds together the Universe and Ages, and supplies the Three Luminaries with light. It is so tenuous and subtle that it pervades everything just as water pervades mire. It is by *Tao* that mountains are high and abysses deep; that beasts walk and birds fly; that the sun and moon are bright, and the stars revolve in their courses.…When the spring-winds blow, the sweet rain falls, and all things live and grow. The feathered ones brood and hatch, the furry ones breed and bear; plants and trees put forth all their glorious exuberance of foliage, birds lay eggs, and animals produce their offspring; no action is visible outwardly, and yet the work is completed….Shadowy and indistinct! it has no form. Indistinct and shadowy! its resources have no end. Hidden and obscure! it reinforces all things out of formlessness. Penetrating and permeating everything! it never acts in vain".

Such are a few of the attributes ascribed to the nameless principle we are considering. What ideas do they suggest to our mind?—Such, I believe, as cannot be expressed in a single word. Lao Tsze and his successors recognised the fact that for this mysterious entity there can be no name, so they spoke of it as *Tao*. We in the West have practically arrived at the same conclusion. What is it that makes flowers grow up and water flow down, which causes the showers to fall and the sun to shine, which guides the stars in their flaming courses, regulates the seasons, endows the butterfly with its radiant hues, gives one man red hair and another black, and, in a word, is the cause of every phenomenon we see, the mainspring of the huge machine of which we form a part? We, too, have failed to find a name for it, and so we call it *Nature*. This, I believe, is the key to early Taoism. Translate *Tao*, as used in this sense, by our common word Nature, and nine-tenths of the difficulties attending the study of this beautiful philosophy vanish of themselves. Nor is this true only of that phase of Taoism which deals with the physical universe. The instincts of animals and the workings of the vegetable creation are not any more the endowment of Nature than are the varying dispositions of mankind. The original constitution of every man, then, being the direct gift of Nature—or rather, an actual part of Nature itself—it follows that it should be jealously preserved intact, in all its pristine purity. This is the grand and primary object of Taoism—the preservation of one's Heaven-implanted nature. And how is this to be accomplished? By imitating the great Mother. Nature never strives; therefore the Holy Man should guard himself from striving too. Nature is ever passive; therefore the Holy Man should let things take their course, contenting himself with following in their wake. Ambition, scheming, hatred, lust—any attention to external objects of whatever kind—are all so much disordering, or spoliation, of the original nature of man, and should therefore be utterly discarded. Even the active cultivation of virtues, such as benevolence, rectitude and propriety, is condemned; nature requires no action to stimulate her growth, and all the Holy Man has to do is bring himself into perfect conformity with her. All such passions, accomplishments, and attributes, being the result of striving, are called, in Taoist phrase, the *human* nature of man, in contradistinction to the *heavenly* or *natural* nature with which he is endowed. "Wherefore," says Chuang Tsze, "do not develop this artificial, human, or engrafted nature; but *do* develop that heavenly nature which is your natural inheritance." In Huainan Tsze's "History of Great Light" we have a still more striking passage, in which the difference between the two natures is lucidly explained. Speaking of those happy ones who, by having arrived at a thorough understanding of the principle of Nature, have reverted to a state of pure repose, he says: "Nourishing their constitutions by tranquillity, and letting their spirits rest in indifference, they enter the Door of Heaven—*i.e.* Nature. And what is it that is called the Heavenly? It is that which is homogeneous, pure, simple, undefiled, ungarnished, upright, luminous and immaculate, and which has never undergone any mixture or adulteration from the beginning. And what is the Human? It is that which has been adulterated with shrewdness, crookedness, dexterity, hypocrisy, and deceit; wherefore it bends itself in compliance with the world, and is brought into association with the customs of the age. For example: the ox has horns and a divided hoof, while the horse has a dishevelled mane and a complete hoof; this is the Heavenly—or natural. Putting a bit into the horse's mouth and piercing the nose of the ox; this is the Human—or artificial. Those who follow the Heavenly are such as roam in company with Nature; those who follow the Human are such as mix themselves up with the fashions of the world....Wherefore", continues the philosopher, "the Holy Man does not allow the Human to disorder the Heavenly—he suffers no injury to be done to his true nature; nor does he permit Desire to disturb his natural feelings. He acts exactly as he ought, without considering what he shall do beforehand; he is trustworthy, without promising; he obtains all he wants without anxiety, and he brings all his designs to completion without doing anything himself. His Spiritual Palace"—a Taoist euphemism for *mind*—"being replete with pure sincerity, he assists the Creator Himself in the government of men."

This leads me to the consideration of what may be termed the first development of the Naturalistic theory. In order to bring himself into conformity with Nature, it is imperative that the Holy Man should remain always and completely passive. This is expressed by the formula *wu wei*, which may be variously rendered "non-exertion", "not-doing", "inertia", "absolute inaction", or "masterly inactivity". In addition to the idea of undisturbed quiescence it embraces also that of spontaneity and designlessness; so that even the rigid adherence to an inactive policy is robbed of its full virtue if it be adopted with intent. The very effort to obtain possession of Nature, says Chuang Tsze, defeats itself, for the simple reason that it *is* an effort. A man must be passionless as well as motionless; he must be content to leave himself to the influences which surround him, and discard all thoughts of helping on the work; he must banish desire from his heart; he must concert no schemes and form no plans; he must never anticipate emergencies, but simply mould himself according to any circumstances that may arise. And especially is this of importance in the world of politics. Here the formula *wu wei* must be translated "non-interference"—that wise and far-sighted policy the world is so slow to learn. The Taoist condemns over-legislation, and justly points to the peddling meddling system of a so-called paternal government as the cause of anarchy and ruin. Never do anything, he says, for the mere sake of doing it; never do anything that is not absolutely necessary; leave the people to develop their own resources, and feel their own way to tranquillity and prosperity. Let Nature work unimpeded, in social and political life as well as in the sphere of physics or of morals; then your subjects will be contented with their lot, and your kingdom free from conspiracies, dissensions, and disaster. Do nothing to disturb their primitive simplicity. Do not seek to replace their rough instruments of labour by complicated machines; such refinements lead to luxury, to scheming, to ambition, and to discontent; the very exercise of such ingenuity implies a scheming mind; therefore, discourage artificial innovations. The secret of happiness is to be found in quiescence, simplicity, and content; and the only way to attain to these is to bring body, passions, intellect and will into absolute conformity with Nature.

The descent from these sublime and simple ethics during the Han and succeeding dynasties was fatally rapid. They soon became obscured in a mist of hocus-pocus and imposture, in which idolatry, the prolongation of life, the elixir of immortality and the transmutation of metals played a prominent part. With this degraded phase of Taoism we have nothing whatever to do. It is only sad to reflect how soon and how irrevocably the ancient doctrines of Lao Tsze and his successors fell into desuetude and have since endured the reproach of their enforced association with a system of superstitious folly. The fine indifference of the old Taoists to life and death, wealth and penury, has given way to sordid avarice and attempts to prolong the existence of the material frame; the pure code of the Naturalistic philosopher has been reversed; his precepts are forgotten, his dignity dishonoured. But the Canons of Taoism proper are still open to us, and they are deserving of careful study. The "orthodox" theories of the Rationalist school have surely had an ample share of attention from Western scholars, while the independent doctrines of the rival teachers have been in a measure neglected. And yet the Naturalists are far bolder and more original in thought than the Rationalists; they are trammelled by no slavish reverence for departed kings and exploded platitudes; their minds are free, their theories striking, and their practice pure. I will not write more upon this subject now, however, though in one sense it is almost inexhaustible. A forthcoming translation * of Chuang Tsze's "Divine Classic of Nan-hua" will, I trust, do something, however little, towards attracting the attention of sinologues to the beautiful Philosophy of Nature preached by the founder of Taoism; a study, I make bold to add, which cannot fail to yield rich stores of benefit to every one who takes it up, be he scholar, dilettanti, or divine.

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* Since published.

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JOURNAL
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ARTICLE I.

NOTES ON THE HYDROLOGY
OF
The Yang-tse, the Yellow River, and the Pei-ho [*]

BY

H. B. GUPPY, M.B.,

Surgeon H. M. S. "HORNET."

IT will be unnecessary to enter into a general description of these three rivers which together form the great drainage-system of China: and I will therefore confine my remarks to the subject proper of this paper.

While stationed in the waters of the Yang-tse and Pei-ho during 1877 to 1879, opportunities were afforded me of making observations on the discharge of water and sediment of these two rivers: and by supplementing my own estimates with those made at the close of last century by Sir George Staunton in the case of the Yellow River, I have been enabled to consider these three streams in their conjoint character.

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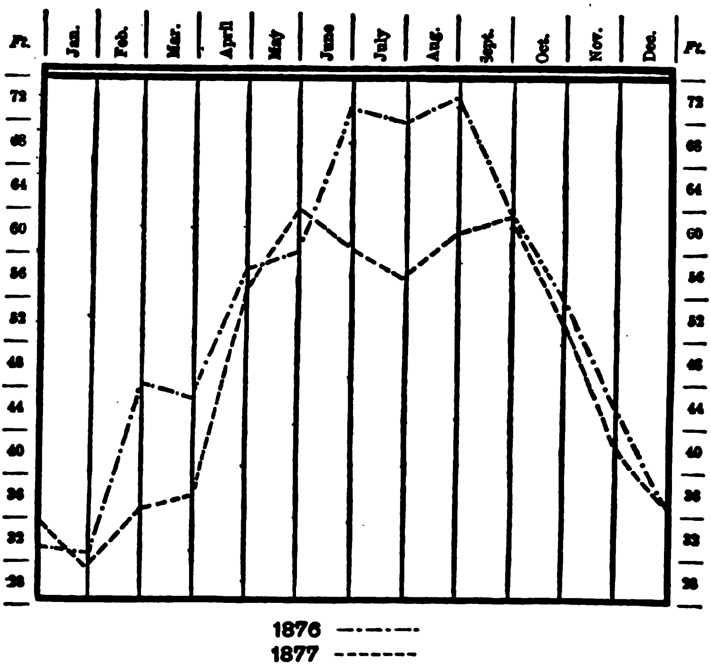
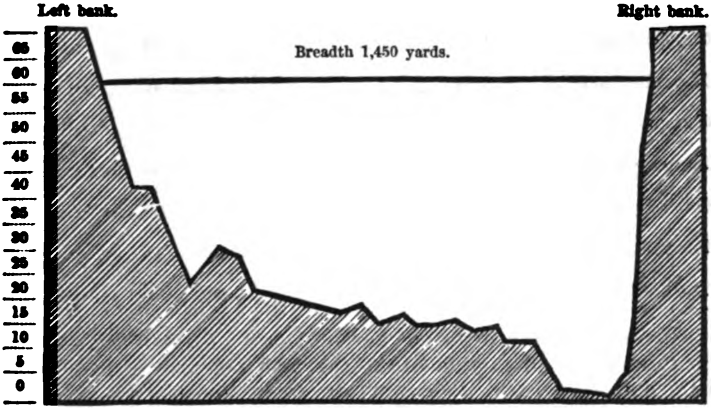
[*] Read before the Society on the 21st September, 1880.

I. The Yang-tse.—The waters of this great river begin to rise in the months of February and March; and attaining their highest level in June or July, they commence to subside about the end of August, or the beginning of September; reaching their lowest level about the close of the following January. The subjoined chart represents the rise and fall of the water at Hankow during 1876 and 1877.

MEAN HEIGHT OF THE YANG-TSE.



The discharge of water at Hankow.—The position of the foreign settlement at Hankow immediately below the union of an important tributary—the Han—with the main stream, renders it a very suitable site for estimating the amount of water discharged in that portion of the river's course. In order to obtain correct data it was necessary to ascertain the average depth of the river, its breadth, and the force of the surface current. By taking a line of soundings across the river from the middle of the "bund" (in November, 1877), I ascertained that by far the greatest bulk of water lay against the opposite shore or right bank, where a sounding of 62 feet was obtained within a few yards of the mud, (vide section below). The average depth of all the soundings—thirty in number—was 42 feet: and the breadth of the river at the same place was 1,450 yards (by sextant measurement).



SECTION DRAWN FROM SOUNDINGS AT HANKOW, NOVEMBER, 1877.

The following table, formed from my own observations and from data obtained from the Custom House at Hankow and by reference to the China Sea Directory, contains the requisite materials for estimating the water-discharge:

	Surface current.	*Average depth.*
May 31st 1877	2¼ knots per hour	.... 64 feet ....
June 30th............ ,,	2½ ,, ,,	.... 61 ,, ...
July 31st............ ,,	3 ,, ,,	.... 58 ,, ...
August 31st ...... ,,	3½ ,, ,,	.... 62 ,, ...
September 30th ... ,,	2¾ ,, ,,	.... 63 ,, ...
October 31st ...... ,,	2 ,, ,,	.... 53 ,, ...
November 30th ... ,,	1¼ ,, ,,	.... 42 ,, ...
December 31st...... ,,	1 ,, ,,	.... 36 ,, ...
January 31st 1878	⅘ ,, ,,	.... 30 ,, ...
February 28th...... ,,	1⅘ ,, ,,	.... 39 ,, ...
March 31st .... ,,	1½ ,, ,,	.... 45 ,, ...
April 30th .... ,,	2 ,, ,,	.... 57 ,, ...

Having ascertained the average discharge of water per second for the last day of each month of the year included between May 1877 and April 1878, I was able to obtain the average rate for the whole period by dividing the sum by the number of estimates. The following list gives the result of my observations:*

Average discharge of water per second.

May 31st	1877	846,336	cubic feet.
June 30th	,,	896,293	,, ,,
July 31st	,,	1,022,656	,, ,,
August 31st	,,	1,275,381	,, ,,
September 30th..........	,,	1,018,248	,, ,,
October 31st	,,	622,997	,, ,,
November 30th	,,	308,560	,, ,,
December 31st	,,	211,584	,, ,,
January 31st.............	1878	141,085	,, ,,
February 28th	,,	412,626	,, ,,
March 31st	,,	396,720	,, ,,
April 30th................	,,	670,016	,, ,,

12 | 7,822,502

651,875

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* Average velocity (four-fifths of surface current) × Sectional area = Water discharge.

We may thus estimate the average discharge of water throughout the year at Hankow at *651,875 cubic feet per second.*

On the probable discharge of the whole river. Now I estimate the drainage area above Hankow—550,000 square miles—to be equal to eleven-thirteenths of the whole catchment-basin—650,000 square miles—: and by assuming that the area below Hankow drains off its waters at the same rate as the higher portion of the Yang-tse valley, an approximation may be made to the discharge of water of the whole river. By a simple calculation a result may be obtained which shews that the Yang-tse discharges into the sea as much as *770,397 cubic feet of water per second:* or roughly-speaking it may be stated that, whilst this river carries 652,000 cubic feet of water per second past Hankow, it discharges as much as 770,000 cubic feet per second into the Yellow Sea. Capt. Blakiston,* when at I-chang, nearly 1,000 miles from the sea, estimated the water-discharge of the upper Yang-tse at 500,000 cubic feet per second: it would therefore appear that between I-chang and Hankow, which is distant about 600 miles from the sea, the river increases its bulk by 152,000 cubic feet; and between Hankow and the sea by nearly 120,000 cubic feet. These estimates all refer to the average discharge of water for the whole year.

On the amount of sediment carried down by the Yang-tse at Hankow.—The proportion of sediment varied considerably in different seasons of the year: while in November 1877 the river contained about 4 grains in the pint, I fonnd as little as $\frac{2}{3}$ of a grain in March 1878; and as much as 7 grains per pint in the following July, when the river was at its height. The average quantity of sediment throughout the year may be placed at *four grains per pint* of twenty ounces. This amount would represent a proportion of $\frac{1}{2188}$ by weight; and taking the specific gravity of the dried mud at 1.9, as much as $\frac{1}{4157}$ by bulk. If this fraction of bulk is applied to the total amount of water carried in a year past Hankow—20,557,530,000,000 cubic feet—the annual discharge of sediment will be obtained; but to allow for the amount of mud a river pushes along its bed, one-tenth must be added, according to the method adopted by Messrs. Humphreys and Abbot in the case of the Mississippi. With this correction the total annual amount of sediment carried past Hankow may be estimated at *5,439,808,275 cubic feet;* which represents an average discharge of 172 cubic feet per second.

---

* "Five months on the Yang-tse."

By assuming that the portion of the basin of the Yang-tse below Hankow supplies the same relative amount of sediment as the remainder of the drainage-area, we may, following the plan employed when estimating the water-discharge, place the total amount of suspended material carried down every year to the sea at *6,428,858,255 cubic feet.*

On the rate of subaerial denudation of the valley of the Yang-tse.—Without entering into detail, it will be sufficient to state that the removal of this bulk of solid matter from the area of drainage—650,000 square miles—represents a lowering of the surface of $\frac{1}{2818}$ of a foot of sediment every year: but, allowing for the difference in specific gravity between sediment (1.9) and rock (2.5), the amount of suspended material is equivalent to the removal of $\frac{1}{3707}$ of a foot of rock in a year; or, which is the same thing, *one foot in 3,707 years.* This therefore represents the rate at which the surface of the Yang-tse valley is lowered.

II. The Yellow River.—Those who may have read the narrative of Lord Macartney's embassy to China in 1792 will be familiar with the description given by Sir George Staunton of the methods employed in estimating the quantities of water and sediment discharged by the Yellow River at the place where it was crossed by the Grand Canal. The volume of water was placed at 418,176,000 cubic feet per hour which is equivalent to *116,160 cubic feet per second:* while the sediment was estimated to reach the enormous bulk of *17,520,000,000 cubic feet in a year.* Though loth to disparage the value of these estimates given by Sir George Staunton—for by so doing I shall weaken the premises of my subsequent conclusions—yet I must accept with some hesitation results which have been obtained from a single experiment. Had I based my observations at Hankow on a solitary estimate, made either in the months of January or August; the difference between the two estimations would be represented by the numbers 9 and 1 (vide table): it should therefore be remembered that the estimates of Sir George Staunton are of more value as the trustworthy results of a single observation than as representing the average discharge of water and sediment throughout the year. The rate of subaerial denudation of the basin of the Yellow River has been calculated to be *one foot in 1,464 years.*

III. THE PEI-HO.—This river is indeed of small size when compared with the Yang-tse and the Yellow River: but it is worthy of consideration in this respect; that having obtained an approximate idea of the amount of water and sediment it discharges, we shall be able to consider the three rivers in their combined character. For the three winter months included between the beginning of December and the beginning of March, this river is frozen over; a character which distinguishes it from the Yang-tse and its sister stream.

The water-discharge.—My observations were made at the foreign settlement of Tientsin, situated about 50 miles from the mouth of the river, and immediately below the junction of the Yu-ho (commonly known as the Grand Canal) and the Pei-ho proper. My data were confined to the four months from December 1878 to March 1879: but owing to the limited "rise" and "fall" of the river in the different seasons of the year, which do not often exceed six feet, I feel fairly confident that my estimate of the average discharge of water for these four months approximates the average discharge for the whole year.

The breadth of the river in March 1879 at the place of observation was 280 feet; the greatest depth 18⅓ feet; and the average depth of all the soundings 14⅓ feet. The following table refers to the variations in the velocity of the surface current and in the depth of water.

	Average surface current.	*Average depth.*
December............1878	1⅓ knots per hour	14 feet.
January 1879	⅘ „ „	14⅓ „
February............ „	1⅜ „ „	16 „
March .... „	2 „ „	14 „

From the data given above I have estimated the average volume of water discharged per second during each month as follows:

December 1878	6,355	cubic feet per second.
January 1879	4,389	„ „ „
February „	9,684	„ „ „
March „	10,592	„ „ „

The average discharge for the whole of this period of four months may be placed at *7,707 cubic feet per second*, or roughly speaking 7,700 cubic feet. For reasons above stated this estimate may be taken to fairly represent the average discharge for the whole year.

On the amount of sediment carried down to the sea.—I found great variation in the amount of sediment contained in the river water from month to month. In the months of January and February, the quantity was not more than $\frac{3}{8}$ of a grain per pint, in December 6 grains, while in March it averaged $11\frac{1}{8}$ grains, reaching in the middle of the month as much as 15 grains per pint. Taking the average quantity of sediment during the four months in question to be *five grains per pint* of twenty ounces, then the proportion of sediment by weight will be $\frac{1}{1750}$ and by bulk $\frac{1}{3325}$. Adopting the method of calculation employed in the case of the Yang-tse, we find that during this period of four months 26,655,417 cubic feet of sediment were carried past Tien-tsin. By assuming that this estimate fairly represents the rate of discharge during the remaining two-thirds of the year, we may place the total amount of sediment carried down annually to the sea at about *80,000,000 cubic feet*.

The removal of this bulk of solid material every year from a drainage area of 55,000 square miles * is equal to the lowering of the whole surface of *one foot in 25,218 years*. This therefore represents the rate of denudation of the basin of the Pei-ho. I had not the means of ascertaining the amount of material held in solution in either the water of the Yang-tse or the Pei-ho, an element which has been omitted altogether in every one of these three rivers: but what an important factor has been disregarded not only in the case of the Chinese rivers but in similar estimations relating to other rivers of the globe, will be rendered evident by a brief perusual of Prof. Huxley's recent work on Physiography.

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* In Keith Johnston's Universal Gazetteer the drainage-area of this river is stated to be 24,000 square miles: such an estimate can only refer to the Pei-ho "proper," and I have had in consequence to adopt my own computation.

IV. THE YANG-TSE, THE YELLOW RIVER, AND THE PEI-HO. —We have now the necessary materials for considering these three rivers in their conjoint character. Together they drain an area of 1,105,000 square miles or about four-fifths of China "proper": together they discharge a volume of water into the sea equal to *894,000 cubic feet per second* (more correctly 894,177), and a mass of sediment amounting in a single year to as much as *24,028,800,000* cubic feet.* Attention should be once more directed to the great variations in the proportion of sediment contained by these three rivers: the maximum quantity I observed in the waters of the Yang-tse was seven grains in the pint; in those of the Pei-ho 15 grains; while Sir George Staunton found over 80 grains in the same quantity of water, an estimate which he accepted as typical of the whole year: I have already referred to the peril or receiving such a inference and have urged its acceptance as a *quantum valeat* experiment.

With reference to the combined rate of subaerial denudation of these rivers, it will be sufficient to state that the removal every year of 24,028,800,000 cubic feet of sediment from an area of 1,105,000 square miles represents a lowering of the surface of *one foot in 1,687 years.*

The following table will enable us to obtain an idea of the rank held by the Yang-tse, the Yellow River, and the Pei-ho in the river system of the globe:

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* By some misconception certain Authors have adopted Staunton's estimate of the sediment discharged by the Yellow River and have accepted it as a general computation for the river system of China: e. g. Page's advanced Text Book of Geology.

	Water per second.	*Sediment per annum.*	*Subaerial denudation*
Amazon ……	2,458,026 cubic ft.	………	………
Congo ………	1,800,000 „	………	………
Yang-tse ……	770,397 „	6,428,800,000 cb. ft.	1 foot in 3,707 years
Plate ………	700,000 „	1,543,500,000 „	„ 29,400 „
Mississippi …	615,924 „	7,474,000,000 „	„ 6,000 „
Danube ……	300,321 „	1,255,500,000 „	„ 6,846 „
Shat-el-Arab	295,461 „	………	………
Ganges………	203,485 „	6,368,000,000 „	„ 2,358 „
Indus ………	199,476 „	………	………
Atrato ………	185,274 „	………	………
Nile …………	130,032 „	………	………
Yellow River	116,160 „	17,520,000,000 „	„ 1,464 „
Rhone ………	91,935 „	594,000,000 „	„ 1,528 „
Rhine ………	69,741 „	………	………
Po……………	61,263 „	405,420,000 „	„ 729 „
Pei-ho ………	7,707 „	80,000,000 „	„ 25,218 „
Thames ……	2,300 „	1,865,900 „	„ 9,800 „

On the time required to fill up the Gulfs of Pechili and Liau Tung, the Yellow Sea, and the Eastern Sea north of parallel 29° and west of the 126th meridian.—By reference to a map it will be at once perceived that the portion of sea included above receives the waters and sediment discharged by the three rivers under consideration. Sir George Staunton estimated that the sediment carried down to the sea by the Yellow River would fill up the Yellow Sea with the Gulfs of Pechili and Liau Tung in a period of 24,000 years:* Elisée Reclus affirms that the Yellow Sea is much deeper than Staunton stated it to be, and that this estimate should be doubled: on carefully examining the latest charts of these seas, I am inclined to think that Sir George Staunton's estimate of the average depth—20 fathoms—is not more than two or three fathoms below the truth. Following the same method of calculation in the case of the larger portion of sea, I find that the total surface area is about 200,000 English square miles; and I place the average depth of the whole region at 26 fathoms. According to the present discharge of sediment of these three rivers, a period of 66 days would be required to form an island a mile square and reaching to the surface: and, assuming that there is no elevation or depression of the sea-bottom, an interval of 36,000 years would be requisite to form the whole sea under consideration into dry land. But we have the witness of raised beaches with historical and other evidence to prove that in our own time the Northern Coast of China is undergoing a gradual upheaval: and for this reason a period considerably less than 36,000 years will be required to convert the sea into *terra firma* In very truth, Sir George Staunton's original estimate as applied to the Yellow River may not fall short of the time required by the three rivers to fill up the whole sea under consideration.

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* At that period the Yellow River discharged its waters into the Yellow Sea.

The following is the substance of some remarks made by the President after the reading of the paper:

In the account of Lord Macartney's journey referred to in the paper, an extract is given from the Journal of Mr. Barrow, in which it is stated that 1⅜ gallons of the water of the Yellow River contained 2¼ cubic inches of mud. If this were dried mud it would represent fully 80 grains per pint. I have personally examined over 200 miles of the Yellow River, and although I have made no measurements of the mud contained, I can confidently assert that it cannot amount to anything like the above quantity.

I have made measurements of the cross section of the river and have obtained the best information I could regarding the depth of water and speed of current at different seasons.

I estimate the discharge (very roughly) as follows:—

Extreme low water	18,000	cubic feet per second.
Ordinary low water............	36,000	„ „
Flood discharge	112,000	„ „

The last amount gives 403,200,000 cubic feet per hour, or almost exactly the amount given in the paper.

Considering the frequent floods I should not be surprised to learn that future careful observations gave the average discharge at 300,000,000 cubic feet per hour, and the sediment 50 per cent in excess of that in the Yang-tsze.

I have examined the Pei-ho on several occasions, but always between March and October. Last year I had occasion to measure the cross section near the bridge of boats, and, taking the speed and depth at what appeared to me to be their normal amounts, I arrived at a discharge of 9,000 cubic feet per second. Seeing that the observations in the paper extended over four months, I should not have thought of giving the result of my observations, were it not that the paper refers entirely to the winter months, while my experience of the river is confined to the summer months, and my observations therefore go to show that had Dr. Guppy extended his observations over a whole year the average discharge would have come out slightly in excess of the amount of 7,700 cubic feet per second given in the paper.

NOTE.—Dr. Guppy contributed to NATURE, September 23rd 1880, a letter going over much the same ground as the above, which led to an interesting discussion in the pages of that periodical on the main points at issue An explanation offered by Mr. T. Mellard Reade that the excessive estimate of the amount of silt conveyed by the Yellow River was owing to the possible measurement of the deposit in a wet state seems to offer some explanation of the discrepancy between that river and the Yang-tsze. Experiments on the mud in the depositing tanks of the Cairo water-works show that the difference between the bulk wet and dry may amount to as much as 10½ to 1. If Sir George Staunton's results be divided by ten the result of 1,752 millions of cubic feet per annum as compared with the 6,429 of the Yang-tsze would fairly represent the different character of the two rivers, the Yellow River containing in its waters a palpably greater proportion of silt than the Yang-tsze. The conclusions to be derived from Dr. Guppy's paper are of great Geological interest, as bearing on the age of the Mid-Asian Continent. Leaving the Yellow River out of the question, as that stream has for the most part flowed into the Gulf of Pechili, we may form an approximate estimate of the age of the delta of the Yang-tsze. Taking the depth of the delta to average 150 feet and assuming Dr Guppy's calculations of the annual deposit as 6,782½ millions of cubic feet, which they seem to amount to, the annual superficial growth of the delta would amount to 1.6 mile. We may assume 40,000 square miles as the area of the alluvial deposit intending from Ningpo to the bed of the Wei. This would give an age of 25,000 years for the delta. In my address to the Society on the 20th February, 1877,* I assumed a rate of denudation of the drainage area of the Yang-tsze amounting to one foot in 2,700 years, deriving thence an age for the delta of 18,500 years. Subsequent calculations led me to reduce this amount, and fix the time required for deposition at somewhat over 20,000 years. The age of the delta of the Ganges and Brahmaputra has been put down at about 26,000 years, which is in remarkable accord with the other calculations. With regard to the supposed "raised" sea beaches, those which have been detected in the Yang-tsze delta, as well as the present distribution of the water supply, go to prove that the oscillations of level since the commencement of the delta have been of the slightest, and that practically speaking the levels of the North-east of China have remained unchanged during the period of deposition.

THOS. W. KINGSMILL.

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* Vol. XI, page 18.

ARTICLE II.

SOME NOTES ON THE GEOLOGY OF TAKOW, FORMOSA.*

BY H. B. GUPPY, M.B.,

H. M. S. "HORNET."

A NARROW entrance, about 60 yards in width and bounded on each side by precipitous limestone cliffs, leads into the lagoon-like harbour of Takow. This harbour, which is from 6 to 8 miles long and from 1 to 2 in breadth, is bounded on the south by a low sand spit 300 or 400 yards across and several miles in length; while on the north lies a flat plain through which winds a small river, which empties itself into the harbour. On the north side of the entrance Ape's Hill rises to a height of 1,100 feet above the sea, while Saracen's Head, a low hill about 170 feet in height, immediately overlooks the entrance on its southern side. A level plain extends between Ape's Hill and the distant range of mountains; in the midst of which rises the abrupt eminence of Whale-Back Hill which, removed from 4 to 5 miles to the northward of Takow, attains an elevation of 700 feet above the sea.

The leading physical features thus briefly described point to the conclusion that the harbour of Takow is of recent origin in comparison with the age of the island of Formosa. There was probably a time when the small river emptied its waters directly into the sea: the sand spit as such did not exist; and Saracen's Head was isolated by water from the adjoining coast. The river had not improbably in those ages a somewhat steeper gradient than it has at present; and the impetuosity of its current would be diminished, and in consequence its power of transporting material would be lessened when it discharged its waters with their suspended sediment into the sea. A bank might then be formed, which by means of a gradual upheaval of the sea bottom, assisted by the surf of these Formosan seas, might have given rise to the present spit. Should the same conditions, which determined the formation of the spit, still be in operation, the bar, which extends off the entrance to this port in a direction almost continuous with that of the spit, will in the lapse of time be raised above the level of the waves, and the harbour of Takow will be greatly extended.

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* Read before the Society on the 21st September, 1880.

With reference to the more strictly geological features of Takow, I was enabled to make a few notes during a stay of ten days in that port. The white compact limestone of Ape's Hill is honey-combed to a marked degree on its weathered surface by the long continued action of the rain and other atmospheric agencies. The honey-combed external surface, with the dark colour externally of this limestone rock, caused it to be mistaken by the writer of a paper in the Journal of the Royal Geographical Society of 1873 for a rock of igneous origin.—"The rocks are of igneous formation"—thus the author of the paper asserts when referring to Ape's Hill—"and are built up of a multitude of cells, the whole mass appearing to have been suddenly chilled while in a state of ebullition, presenting a series of jagged flint-like edges difficult to ascend."—This impression of the igneous origin of Ape's Hill is an error which might readily have been avoided by a moment's inspection of the fractured surface of the rock.

The limestone often rises abruptly from the sea; and in the portion of Ape's Hill that bounds the entrance to the harbour I observed that the rock was stratified and that it dipped to the East at an angle of from 35 to 40.° I obtained several fossils from a hill-slope, situated near the sulphur spring (which I will refer to towards the close of the paper). The limestone in which they were embedded was of a more earthy texture than that met with in the higher parts of Ape's Hill. The following fossils were collected:—

(a) A species of *Scutella* which was very abundant. Some specimens were embedded as they would have lain on the sea bottom, whilst others were raised upon their edges.

(b) *Balanidæ* mostly small and evidently embedded "in situ" on the surface of the rock.

(c) A species of a genus of corals resembling "*Cyclolites*."

(d) Spines of *Echini*, often of considerable size. I was only able to obtain one "*sea-urchin*" and that a small one.

(*e*) *Pecten*, *Ostrea* and other bivalves, with a curious fossil, apparently a *cast* of a *spiral univalve*.

(*f*) *Polyzoa* on the surface of the shells and scutellæ: a single specimen of a small *crab*: a *shark's* tooth; and some fragments of *coral*.

On the summit of the ridge or hill where the fossils were obtained, I observed a fissure in the rock, varying from one to three feet across and extending for some 200 or 300 yards in a N. W. to S. E. direction: by dropping a stone I ascertained that it was of no great depth. I have been informed by residents at Takow, that besides other similar fissures there are caves often of considerable length, which, situated nearly half-way up Ape's Hill on the edge of the plateau, are rather difficult to find without the assistance of a guide as their entrances are small and often concealed partially by herbage. Loose bones are found on the floor of these caves. I was very much disappointed at not being able to find them; and the shortness of my stay prevented me from continuing the search. However I would especially recommend the careful examination of these caves and fissures to any resident at Takow, and particularly the investigation of the floor-deposits.

Higher up the sides of Ape's Hill I found no signs of bedding which may have been concealed by the honey-combed weathered surface of the rock. The ascent is tedious by reason of the sharp edges of the limestone which are often concealed by the long grass. Nearly half-way up the hill and elevated about 450 feet above the sea, there is an extensive plateau about two miles in length and one in breadth, from which the upper half of Ape's Hill rises steeply to its summit. The same compact limestone rock continues to the top.

The low eminence of Saracen's Head, on the opposite side of the entrance to the harbour, is of the same compact limestone. A steep cliff 170 feet high faces the sea, at the foot of which lie huge masses of rock—evidences of the eroding action of the sea. In the face of the cliffs there appear to be lines of horizontal stratification; but on obtaining a side view, the beds are seen to dip away to the East, though with rather a smaller inclination than that already noticed on the opposite side of the entrance. In many cases the face of the cliff was coated with a stalagmitic crust of carbonate of lime.

I should not omit to notice the existence of a sulphur-spring in a small bay of the harbour facing the native town. Impregnating the air in its vicinity with a strong odour of Sulphuretted Hydrogen, it oozes out at several places at the base of the hill—the largest outlet being covered at high water. The water also issues from small holes in the limestone just above the main spring; and retains the temperature of the air. At the summit of the spur—at the base of which the spring occurs—extends the fissure I have previously referred to.

If I might draw some conclusions from the foregoing observations, they would be as follows.

(1) The collection of fossils which I obtained evidently shews that the limestone in which they are embedded is of recent origin. I did not succeed in finding any fossils in the higher parts of Ape's Hill: but, according to the late Mr. Swinhoe, recent shells and corals are found at Takow at a height of 1,111 feet above the sea. To have been found at this height they must have occurred at the summit of Ape's Hill. Such was not my experience.

(2) The inclination of the strata in the lower part of the hill and the existence of the fissures, have a common origin in the upheaving process which raised the mass of limestone forming Ape's Hill 1,100 feet above the sea. The extensive plateau, elevated about 450 feet above the sea level, points to the cessation of the process of upheaval during a lengthened period, in which the part of Ape's Hill that rises from the plateau alone shewed itself above the sea. Then came another period of upheaval in which the lower part of the hill was raised above the waves, and the rocks highly inclined.

(3) It is difficult to explain the presence of these isolated limestone eminences in the midst of a plain; and one is reminded of the somewhat analogous case of the Rock of Gibraltar. The explanation that most readily presents itself, is that of the growth of a coral reef on a gradually

subsiding bottom, followed by the upheaval of the whole mass above the waves. This is not altogether a satisfactory solution of the problem; but such as it is it offers the readiest way out of the difficulty.

ARTICLE III.

BOTANICON SINICUM.

NOTES ON CHINESE BOTANY FROM NATIVE AND WESTERN SOURCES.

BY E. BRETSCHNEIDER, M.D.

PART I.

PRELIMINARY NOTICES.

MORE than ten years have elapsed since I published a little essay [1] intended to show the mode adopted by the Chinese in treating of Natural science, especially Botany, and what degree of advantage European botanists may derive from the study of Chinese botanical works. The present paper now brought before the public, although treating of the same subject and reproducing occasionally the matter of my former essay, will prove to be virtually a work new in substance, entirely recast, into which also a considerable amount of new information has been introduced.

In resuming my past labours after a long interval I cannot but repeat what I confessed in the preface of my former paper, that I am neither a Sinologue nor Botanist, my knowledge of Chinese as well as of Botany being quite limited. It may well then be asked whether the author has the acquirements to fulfil the difficult task he has taken in hand; and what value may be assigned to a work dealing with matters for the elucidation of which the author declares himself not sufficiently trained by appropriate fundamental studies. I therefore owe to the reader some explanation as to the extent of my competence.

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[1] *On the Study and Value of Chinese Botanical Works*, with Notes on the History of Plants and Geographical Botany from Chinese sources, by E. Bretschneider. Illustrated with 8 Chinese wood-cuts. This article appeared originally in the "Chinese Recorder" of 1870 and 1871, published in Foochow. The editor of this periodical, at that time, seems to have had little experience in proof-reading; at any rate my paper (although presented in a very clear manuscript) came to light with such a profusion of misprints and other inaccuracies, that it would have been ridiculous to append to it a complete list of *errata*. I therefore would feel quite disposed to disavow this my first scientific essay; all the more since at the time I wrote it I had not yet sufficiently mastered the subject, and many of my former statements require modification.

Nobody will, I think, object to my asserting that, for western people, Chinese is of all languages the most difficult; and (I should also say) the most ambiguous.[2] When I first arrived at Peking, 15 years ago, I felt a desire to make myself acquainted with the language in order to be able to utilize the vast literary treasures of the Chinese for the benefit of European science. I soon however became aware of the great difficulties to be encountered, and the long space of time which would be required to learn the language thoroughly. I therefore adapted my studies more exclusively to the branches of Chinese literature I intended to investigate, namely Natural History and Historical Geography. Here in Peking students of Chinese, even with a moderate stock of knowledge, do not generally find any difficulty in producing correct translations; and every information in this connection can easily be obtained from Chinese teachers or books. There are, I imagine, very few, if any, sinologues in China who translate independently and without availing themselves of the assistance of native scholars.

As to the botanical part of my researches, my own knowledge in this department generally is of secondary consideration only. During my long sojourn in China I have always been busy collecting plants, and in so doing I have paid especial attention to those employed by the Chinese for economic and medicinal purposes, ascertaining when possible their native names from books as well as from converse with the natives. My collections I have been in the habit of sending for determination to several of the most eminent botanists of our time, whose names will be frequently met with in this paper, and who have always afforded me liberal assistance in elucidating many dubious questions relating to interesting Chinese plants. This may suffice for the present to enable the reader to form an opinion as to the reliability of the statements put forward in these pages. It may be added that, having access to the splendid libraries of the Russian Ecclesiastical Mission and of the Russian Legation in Peking, where all Chinese works of importance and many rare European books relating to China are to be found, I was enabled to avail myself of many sources of information which it would be difficult to obtain elsewhere, either in China or in Europe. These favourable conditions encouraged me to enter upon the vast, yet almost unworked field of investigation of Chinese Botany from Chinese sources. It is the first attempt of the kind, and is published with a view to laying a foundation for future inquiries. My notes have been written for sinologues as well as for botanists, and I must beg the latter not to be alarmed at the frequent occurrence of Chinese hieroglyphics in the text. No knowledge whatever of Chinese is required to understand the quotations met with in these pages.[8]

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[2] I hardly think that any sinologue, who has pursued his studies in China and read ancient Chinese authors (even with the assistance of a good native scholar), would in every case agree with the great sinologue Stan. Julien, who in his Syntaxe de la Langue Chinoise, I. p. 1, states that for an instructed sinologue the Chinese language is as clear and intelligible as any other. Unfortunately we have frequently to complain of the vagueness and want of precision of the Chinese style, the authors generally being more anxious to imitate what they call the classical style than to convey in their writings a clear idea of what they mean to say.

M. Alph. De Candolle was the first to point to the importance of Chinese records for elucidating certain dubious botanical questions. His admirable work on Geographical Botany—a most interesting science first created by that eminent botanist—concludes in the following terms:—

"L'ancienneté, en Chine et au Japon, de quelques unes des "races de plantes cultivées est curieuse, du même que la séparation du peuple chinois d'avec le peuple de l'Inde, à une "époque reculée, séparation qui se prouve par des cultures différentes et par des noms de plantes usuelles, absolument différents. "J'ai senti à plusieurs reprises dans mes recherches combien

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[8] I may notice here that an eminent botanist in Europe has distinguished himself also as a sinologue. Steph. Lad. Endlicher, born in 1804, died in 1849 as Director of the Botanical Garden, Vienna, known by his numerous botanical writings (his "Genera Plantarum" is still a standard work), published in 1845 a Chinese Grammar and also an Atlas of China. He does not however seem to have directed his attention to Chinese botanical works.

"l'étude des encyclopédies chinoises et japonaises pourrait rendre "plus de services à l'histoire des espèces cultivées, laquelle à son "tour est importante pour l'histoire des nations."

Indeed a considerable amount of information, interesting to botanists and throwing light especially on the history of cultivated plants, is found in Chinese literature, but is generally difficult to discover, and often involved in a mass of other matter, appreciated only by Chinese readers. We know from their ancient records the plants cultivated in China at an early period, when it had no intercourse with the other nations of Asia. We meet also with positive statements of ancient authors regarding other economic plants now abundantly grown all over the Empire, but introduced from other Asiatic countries, especially Western Asia, after these regions had become known.

After the discovery of America a great many American plants were introduced by the Spaniards and Portuguese into the Philippines and the Indian Archipelago. Their cultivation spread rapidly over the neighbouring regions of the old continent, and they found their way also to China. Most of these plants have become perfectly naturalized in Asia and, had the proof of their introduction from America not been preserved in ancient western records, they would certainly be considered natives of Asia. There are some other plants now generally cultivated in America as well as in Asia regarding which even M. De Candolle, notwithstanding his diligent researches, is unable to state, whether they are indigenous in America only, or whether they have been cultivated from time immemorial in Asia also. For the decision of these questions the ancient Chinese records again prove to be of great weight.

An important aid towards defining the geographical distribution of plants in China is found in the geographical works of the Chinese, and such information is all the more precious, as our botanical knowledge regarding the interior of the Empire is still almost a blank. In another place we shall speak more in detail of this branch of native literature.

There are numerous Chinese works dealing especially with Botany, Agriculture, and other kindred sciences relating to Practical Botany. They are replete with information regarding the uses of plants for food, clothing, manufacturing purposes, etc.

In introducing my work I may take the opportunity of explaining in a few words the plan of arrangement. I have divided it into a general and a particular part. The first, which forms the substance of the present paper, begins with a review of the History of Botany, Agriculture and Materia medica of the Chinese and other Eastern Asiatic nations, entering into some details concerning the most prominent treatises and authors in these departments. In the same chapter I shall attempt to show the method employed by the Chinese in describing plants and in investigating Botany and Materia medica.

Another chapter is devoted to the important question of identifying Chinese names of plants with scientific botanical names. I shall record the attempts made by European scholars to ascertain the botanical names of the plants described in Chinese books.

The first part will conclude with an alphabetical list of Chinese works, and another of Chinese authors quoted in native botanical treatises (the greater portion never before noticed in European books on Chinese literature). The time of publication will of course always be given, as this is a matter of primary importance for our investigations.

In the second part I shall endeavour to present a history of Chinese domestic, ornamental, medicinal, and other plants used for economic purposes, as far as these have come to the knowledge of botanists. My information has been derived from native authors as well as from European scientific works.

CHAPTER I.

CONTRIBUTION TOWARDS A HISTORY OF THE DEVELOPMENT OF BOTANICAL KNOWLEDGE AMONG EASTERN ASIATIC NATIONS.

1. Chinese Literature on Materia medica and Botany.

Before I proceed to enter upon the subject, it may be well to recall a few points in Chinese ancient history intimately connected with our researches into the history of plants and Botany from native sources.

The early history of the Chinese, like that of other nations, is veiled in obscurity. It is a view generally held by western scholars, although not the slightest evidence confirming it is found in the early historical records of the Chinese, that the birthplace of this race was somewhere in Central or even in Western Asia, and that they entered their present land from the northwest, apparently by the main route along and across the Yellow River. It seems that this supposition of Chinese immigration is principally based upon the fact, that the most ancient Chinese historical documents establish the existence of aborigines in China, quite different from the "black-haired people," as the ancient Chinese termed themselves. Obscure as is the origin of this nation, it is certain, however, that when they first appeared on the stage of history about 3000 years B. C., they considered themselves indigenous in China. For ages they were a people of no consequence, developing themselves independently and quite apart from other Asiatic nations. For many centuries they were acquainted only with their immediate neighbours, with whom they were constantly at war. The southern part of the present province of Shansi was the cradle of the Chinese Empire, whence it gradually extended its power in all directions, but less towards the south. We may therefore conclude that all the Chinese names of plants met with in the earliest native historical documents refer principally to northern Chinese plants, all indigenous in these regions. Even at the time when Confucius compiled the Classics (about 500 B.C.), the Chinese dominions did not extend far south of the Yang tze kiang. The present provinces of Shensi, Shansi, Chihli, and Shantung formed the northern part of China in that period. But the centre of Chinese civilisation was then in Southern Shensi, especially in the valley of the *Wei* River and in the present Honan. For nearly 30 centuries the Chinese Emperors resided in these provinces in the neighbourhood of the Wei River or the Yellow River.

The Emperor Ts'in Shi Huang Ti, B. C. 246—209, celebrated as the builder of the Great Wall (the same who ordered the burning of all Chinese books, sparing only those on Medicine, Divination and Husbandry), succeeded first in establishing his authority over the feudal states of China. He subjected the whole Empire to one sole sovereign, and then conquered the regions which are now comprised in the provinces of Fu kien, Kuang tung and Kuang si, known in ancient times by the general name of 南越 *Nan Yüe.* But in B. C. 206 Nan Yüe revolted and became again independent.

The Emperor Wu Ti, B. C. 140—86, of the Han dynasty, made himself master of the south-western portion of present China and reconquered Nan Yüe,[8a] subjecting also a part of Annam. Then the Chinese Empire had nearly the same limits as the Chinese assign to China proper now-a-days. It was under the glorious reign of this Emperor that China, after centuries of isolation, became first acquainted with Japan and the countries of Central and Western Asia. I am aware that a French orientalist has endeavoured to prove that an embassy from Egypt was sent to China as early as B. C. 1113, and that 130 years later the Chinese Emperor Mu wang visited Western Asia. But such assertions are nothing but fantastic dreams. We can safely assume that, before the second half of the second century B. C., the Chinese had no intercourse with the distant countries of Western and Southern Asia, and were even ignorant regarding the tribes dwelling in Central Asia.

In about 139 B. C. Emperor Wu ti despatched one of his officers named 張騫 *Chang K'ien* on a diplomatic mission to the 月氏 *Yue chi* (or *Yue ti*), a people who first dwelt near the north-western frontier of China, but had been driven away by the Hiung nu and had then settled near the river Oxus. The 匈奴 *Hiung nu* at that time occupied the steppes of Mongolia and were constantly at war with China. Chang K'ien, who had necessarily to pass through their dominions, was made prisoner and retained for ten years by the *shan yü* (Khan) of the Hiung nu. Finally he succeeded in escaping to the west and penetrated to the countries of the Jaxartes and the Oxus, where he spent more than a year. On his way back he was again laid hold of by the Hiung nu, but escaped a year later and returned to China in 126 B. C. He brought back intelligence about various regions in the west and their natural productions. The official report of his observations and his biography are preserved in the *Shi ki* or Historical Record compiled by the celebrated Sze Ma ts'ien, a contemporary of Chang K'ien (book 111). In ancient catalogues (事言要元, see Introduction to alph. list) Chang K'ien is reported to have published a narrative with the title 海外異物記 *Hai wai i wu ki*, Record of remarkable things in foreign countries. The Emperor rewarded Chang K'ien after his return, and some years later raised him to the dignity of prince. In B. C. 123 he was commander-in-chief of the Chinese troops directed against the Hiung nu. Owing to a defeat the Chinese had suffered Chang K'ien was cashiered, but was afterwards pardoned. He died about B. C. 103. He is said to have introduced many useful plants from Western Asia into China. Ancient Chinese authors ascribe to him the introduction of the Vine, the Pomegranate, Safflower, the Common Bean, the Cucumber, Lucerne, Coriander, the Walnut-tree and other plants.

[8a] We read in the *San fu huang t'u*, an ancient description of the public buildings in Ch'ang an, the ancient metropolis during the Han, near the present Si an fu in Shensi (see alph. list of works 647), as follows:

After the Han Emperor Wu Ti, in B. C. 111, had subdued Nan Yüe, he built the palace *Fu li* (in Ch'ang an), and in the garden appertaining to it a number of rare herbaceous plants and trees brought from those southern regions were planted. Among the plants enumerated there I have been able to identify the following:

Nephelium Litchi, *N. Longan*, *Canarium album*, *C. Pimela*, *Areca Catechu*, *Cinnamomum Cassia*, the *Banana*; *Canna indica*, *Quisqualis indica*, sweet *Oranges.*

After Chang K'ien had first visited the countries of the west, the geographical knowledge of the Chinese in that direction rapidly increased. China extended its dominions over a great part of Central Asia, and envoys were frequently sent to the realms of Western Asia, and even to India, which country had been known to Chang K'ien only from hearsay. Since the introduction of Buddhism into China, about A. D. 66, intercourse between China and India had become very frequent and continued for centuries, but India was then generally reached by the long circuit of Bactria and Kabul.

The art of perpetuating books by engraving characters upon wood or stone and then printing from the plates, can be traced back in China as early as A. D. 593, but it is probable that an invention of this kind to multiply writings existed there much earlier.[4] It is certain that the Chinese enjoyed at least 800 years earlier than European nations these advantages of diffusion of literature and preservation of ancient records and documents. This circumstance has done much to prevent the loss of many ancient native writings, which render the study of Chinese literature so useful and interesting for European antiquaries.

The early history of the botanical knowledge of the Chinese is closely connected with the history of their Agriculture and Medicine; and their acquaintance with plants dates back from the period when they first began to employ plants for economical and medical purposes.

According to Chinese tradition the semi-mythical Emperor 神農 *Shen nung*, who is said to have reigned in the 28th century B. C., is the Father of Husbandry and Medicine. The *Li ki* (one of the Classics, see further on) states that Shen nung was born near the 厲山 *Li shan* (Sui chou, Northern Hupeh). He is said to have subsequently dwelt in 陳 *Ch'en* (Western Honan), and then moved to 魯 *Lu* (Southern Shantung). See the last edition of the Shi ki (Historical Records), in the first pages of which the ancient traditions regarding this Emperor have been brought together. 13 *li* north of *Lu an fu* (Southern Shansi) there is a mountain called 百穀山 *Po ku shan*, mountain of the cereals,[5] with a temple on its top, where, according to the I t'ung chi or Great Geography of China, Emperor Shen nung is still worshipped. This temple was founded in the 6th century of our era. At the foot of the mountain is the *po ku ts'üan*, or fountain of the cereals. Here tradition makes Shen nung first teach his people how to till the ground and raise grain. Hence it was that his grateful subjects called him Shen nung or Divine husbandman.

It has also been handed down by tradition that Shen nung first tested the medical qualities of herbs and discovered medicines to cure diseases, and the city of Wen hien (Huai king fu, Honan) claims to be the spot where this happened. In the Wen hien chi (topography of this city) it is stated that the 神 農 澗, rivulet of Shen nung, is situated inside the eastern gate. Here according to tradition Shen nung collected medicinal herbs, tested them and touched the soil with his staff, whereupon the water sprung forth. The earliest writings on medicinal plants and dietetics are ascribed to him. 2697 B. C. is given as the year of his death.

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[4] Compare Dr. W. Williams' interesting article on the subject in the "Chinese Recorder." 1875, p. 22.

[5] The term *po ku*, which occurs first in the Classics (Shi king, Shu king), properly means "the hundred cereals," but the Chinese frequently use the numeral "hundred" in a general sense.

Shen nung's successor, the Emperor 黃 帝 *Huang ti*, who reigned in the 27th century B. C., is said to have established his residence in 涿 鹿 *Cho lu* (Pao an chou, west of the present Peking). He is considered the author of the first Chinese works on the art of healing. See Alph. list of works 204.

THE MATERIA MEDICA OF EMPEROR SHEN NUNG.

The well known Chinese Materia medica, *Pen ts'ao kang mu*, of which I shall offer a detailed review in the proper place, in giving an opening sketch of the principal treatises of this class, begins with the 神 農 本 草 經, *Shen nung Pen ts'ao king*, or Classical work on Medicines[6] of the Emperor Shen nung. We find there the following account of this ancient document, which we know only from the quotations of it in other succeeding ancient works of the same kind, to which it has served as a model.

Chang Yü si (who lived in the first half of the 11th century) says: According to ancient tradition this treatise was in 3 books and Emperor Shen nung was the author of it. But no ancient author states that he has seen it himself. In the section on literature in the Ts'ien Han shu (History of the Former Han dynasty, 202 B.C.—25 A. D., where many medical works extant in the first century B. C. are enumerated) no mention is made of this book. But in the biography of Emperor *P'ing ti*, 4th year of his reign (A. D. 4), we find a statement that the Emperor ordered all men in the Empire, familiar with medical prescriptions and the *Pen ts'ao* (see note 6), to assemble in the capital.—In the biography of 樓護 *Lou Hou* (Ts'ien Han shu, 92) it is said that, when he was yet but a boy, he knew by heart the 醫經, *I king* (treatise on medicine), the *Pen ts'ao* and several thousands of medical prescriptions. Thus there can be no doubt that at that time there existed a Pen ts'ao.

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[6] Li Shi chen, the author of the Pen ts'ao kang mu, explains that the term *Pen ts'ao* properly means "Herbal," but, as the majority of medicines are derived from the vegetable kingdom, it is used to designate a treatise on drugs in general.

Li Shi tsi (an author of the T'ang period, 7th century), and before him the 七錄, *Tsi lu*, a work of the Liang dynasty (6th century), speak of the Shen nung pen ts'ao in 3 books; suggesting that it was probably committed to writing during the Han dynasty, for there occur in the book names of places in China referring to the time of the After Han (25—221 A. D.). According to these authorities *Chang Ki* or *Hua T'o*[7] may be the authors of it. But Chang Yü si (who quotes the above statements) does not agree with this opinion. He admits an early existence of the Pen ts'ao king and adduces the *Huai nan tsz'* (2nd century B. C.), which records that Emperor Shen nung in the space of one day tasted the plants and experimented on their efficacy. He found among them 70 to be poisonous. This was the beginning of medical art in China.

Chang Yü si continues: In remote times, when the art of writing was not yet known, science was transmitted from generation to generation by oral tradition, and what was called *Pen ts'ao* then was not a written book. From the period of the Han dynasties (B. C. 202—A. D. 221) medical art began to develop. Chang Ki and Hua T'o[7] largely contributed to the diffusion and completion of medical knowledge, commented on previous writings, and added new information, arranging the whole into a system. This was probably the time when the Materia medica of Shen nung first appeared as a written treatise.

K'ou Tsung shi (about 1115 A. D.) says: In the History of the Han dynasty it is stated that it is not certain who first compiled the Pen ts'ao. The *Shi pen* (written before the Han period) and the *Huai nan tsz'* duly record that Shen nung tasted plants and examined their medical virtues, but they do not speak of a Pen ts'ao. There is however a statement in the *Ti wang shi ki* (History of the early Emperors, compiled in the 3rd century) that *Huang ti* (the successor of Shen nung) ordered his minister *K'i po* (see note 12) to examine the efficacies of plants, to compose a *Pen ts'ao king* (a standard herbal), and to lay down prescriptions for curing diseases. This proves that the appellation of *Pen ts'ao* can be traced back to the time of Huang ti. Nature had bestowed on the ancient sages peculiar faculties for recognizing instinctively, by the taste of natural productions, what was their efficacy in curing sickness. The rules they established were followed by the sages of later times who tried to complete and to enlarge the original matter.

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[7] Celebrated physicians in the third century of our era. See further on note 12 (5 and 6).

According to *Li Shi chen* (the author of the Pen ts'ao kang mu), the Shen nung Pen ts'ao king was originally a treatise in three parts treating of 365 different drugs. It was first commented on by *T'ao Hung king* (A.D. 452-536) who wrote also a supplement to it (see further on Ming yi pie lu).

In the great catalogue of the Imperial Library, book 104, fol. 51, we read that the Shen nung Pen ts'ao king does not exist now-a-days as a separate treatise and that we know it only from the *T'ang Shen wei Pen ts'ao* (a Materia medica of the Sung dynasty; see further on No. 26.) in which the passages printed in white letters on black ground all refer to the text of the Shen nung Pen ts'ao.

The Pen ts'ao kang mu reproduces also to some extent the text of the Materia medica of Shen nung and generally quotes this treatise under the abbreviated title of 本 經 *Pen king*. Under the head of "the celebrated arrangement of drugs by the Emperor Shen nung" the Pen ts'ao kang mu, in the first book, first part, fol. 43 sq., gives the text of a part of the Shen nung Pen ts'ao relating to the qualities, the use, the gathering of drugs, etc. That ancient document arranges the drugs under 3 classes and reads as follows:

Of the first class of drugs there are 120 sorts which are considered to perform the functions of 君 *Kiün* or *Sovereigns*. They support human life, and thereby resemble Heaven. They are not poisonous. Whatever quantity you take, or howsoever long you use them, they are harmless. If you wish to have the body light, to improve the breath, to live to an old age, without growing old, make use of these drugs of the first class.

Amongst the drugs of the first class are reckoned: *Ginseng*, Rad. *Nelumbii speciosi*, *Euryale ferox* (semina), *Jujubes*, *Oranges*, *Jobs-tears*, *Dioscorea*, *Benincasa cerifera*, *Amaranthus Blitum*, *Capsella bursa pastoris*, *Sonchus arvensis*, *Cannabis sativa*, *Ulmus pumila* (bark eaten as food). *Pachyma pinetorum*, *Mushrooms*. *Cassia bark*, *Liquorice*, *Rehmannia glutinosa*, *Kochia scoparia*, *Tribulus terrestris*, *Kadsura*, *Alisma plantago*, *Acorus*, *Typha*, *Plantago*, etc.

There are 120 sorts of drugs of the second class, which are considered to perform the functions of 臣 *ch'en* or *Ministers*. They support human nature, and thereby resemble man. Some of these drugs are harmless; others are poisonous. They ought to be used with discretion.

If you wish to lessen the violence of diseases and re-establish decayed strength, use the second class of drugs.

Amongst the drugs of the second class we find: *Ginger*, *Paeonia Moutan*, *Paeonia albiflora*, *Lilium tigrinum*, *Xanthium strumarium*, *Gentiana*, *Polypodium Barometz*, *Niphobolus Lingua*, *Zanthoxylon*, *Trichosanthes*, *Thladiantha dubia*, *Lemna*, etc.

There are 125 sorts of drugs of the third class which are considered to perform the functions of 佐 *tso*, *Assistants* and 使 *shi*, *Agents*. They cure diseases, and thereby resemble earth. They are very poisonous and ought not to be used continuously. If you wish to drive out cold or heat from the body, or to correct the breath, or to open obstructions, or to heal diseases, use the drugs of this class.

Among the drugs of the third class are reckoned: *Rheum palmatum*, *Phytolacca acinosa*, several species of *Euphorbia*, *Aconite*, *Veratrum Rhododendron*, *Croton*, *Peach* kernels.

The drugs of these three classes make in all 365, corresponding in number to the number of degrees of the zodiac; each degree answering to one day of the year.

It does not come within the province of our investigations to translate the whole chapter which explains the system of that primeval Emperor regarding the qualities and efficacy of medicines, and illustrates the views entertained up to this time on the subject in China. A translation of the greater portion of this curious document will be found in Du Halde's la Chine III 444-45[illegible] and also in Bridgman's Chin. Chrestomathy 503 sq. (trans- [illegible] Dr. W. Williams).

Li Shi chen in the Pen ts'ao kang mu mentions only 347 of the (365) drugs specified in the Shen nung Pen ts'ao, 239 of them belong to the vegetable kingdom, 65 refer to animals, 43 are obtained from minerals.

As to the medicinal plants enumerated in Shen nung's Materia medica, they are up to the present time known to Chinese physicians by the same ancient names. As the greater part of them are natives of North-China and known to me, I shall give here the botanical names of those plants of the Shen nung Pen ts'ao which I have been able to ascertain. I omit the Chinese names, which will be given at the proper places in the second part of my work.

Ranunculus sceleratus.
Aconitum, several spec.
Paeonia Moutan.
P. albiflora.
Magnolia Yulan.
M. hypoleuca ?
Schizandra chinensis.
Akebia quinata.
Aceranthus sagittatus.
Nelumbium speciosum
Euryale ferox.
Chelidonium ?
Sisymbrium.
Capsella bursa pastoris.
Polygala sibirica.
P. tenuifolia.
Dianthus Seguieri.
Malva verticillata.
Tribulus terrestris.
Zanthoxylum, several spec.
Citrus aurantium.
Aegle sepiaria ?
Melia Azedarach.
Euonymus Thunbergianus.
Zizyphus vulgaris.
Z. Lotus.
Vitis vinifera [8]
V. serianaefolia.
Koelreuteria paniculata.
Rhus vernicifera.
Glycyrhiza glandulifera.
Soja hispida.
Pueraria Thunbergiana.
Rhynchosia volubilis.

Sophora japonica.
S. flavescens.
S. angustifolia ?
Gleditschia sinensis.
Cassia Sophera.
Acacia Julibrissin.
Prunus japonica.
Pr. several species.
Amygdalus persica.
Rubus.
Potentilla, several spec.
Poterium officinale.
Rosa indica.
Sedum alboroseum.
Trichosanthes palmata.
Lagenaria.
Benincasa cerifera.
Thladiantha dubia.
Bupleurum falcatum.
Cicuta.
Sium Ninsi ?
Seseli Libanotis.
Cnidium Monnieri.
Levisticum.
Angelica.
Peucedanum.
Aralia japonica.
Panax Ginseng.
Hedera scandens.
Sambucus ?
Gardenia florida.
Rubia cordifolia.
Patrinia.
Dipsacus.

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[8] It is evidently by a mistake which crept into the ancient tradition, when it first began to appear as a written document (in the second century, as the Chinese authors believe), that the *Vine* is mentioned in the Shen nung Pen ts'ao. For we have evidence from other ancient native records that this plant was first introduced into China in the second century B. C.

Eupatorium chinense.
E. several species.
Aster, several species.
Inula chinensis.
Carpesium abrotanoides.
Xanthium strumarium.
Achillea sibirica.
Chrysanthemum indicum.
Artemisia capillaris.
A. apiacea.
A. several other species.
Petasites japonicus.
Atractylis chinensis.
Carduus crispus.
Lactuca versicolor.
Platycodon grandiflorum.
Adenophora.
Rhododendron.
Forsythia suspensa.
Fraxinus.
Ligustrum lucidum.
Olea fragrans.
Vincetoxicum.
Gentiana.
Lithospermum erythrorhizon.
Calystegia.
Cuscuta chinensis.
Physalis Alkekengi.
Lycium chinense.
Scopolia japonica.
Scrophularia Oldhami.
Rehmannia glutinosa.
Orobanche.
Tecoma grandiflora.
Catalpa Bungei.
Incarvillea sinensis.
Vitex incisa.
Salvia plebeja.
S. miltiorhiza.
Nepeta Glechoma.
Scutellaria viscidula.
Leonurus sibiricus.
Plantago major.
Celosia argentea.
Amarantus Blitum.
Achyranthes aspera.
Kochia scoparia.
Phytolacca acinosa.
Polygonum tinctorium.
P. hydropiper.
Polygonum aviculare.
Rumex crispus.
Asarum Thunbergii.
Aristolochia recurvilabra.
Cinnamomum Cassia.
Daphne.
Viscum or Loranthus.
Euphorbia helioscopia.
E. other species.
Elaeococca verrucosa.
Croton tiglium.
Ulmus pumila.
Cannabis sativa.
Morus alba.
Salix babylonica.
Thuja (Biota) orientalis.
Zingiber officinale.
Alpinia.
Bletia hyacinthina.
Dendrobium moniliforme.
Iris oxypetala.
Iris, other spec.
Pardanthus chinensis.
Dioscorea sativa.
Ophiopogon japonicus.
Paris quadrifolia.
Polygonatum officinale.
Lilium tigrinum.
Anemarrhena asphodeloides.
Asparagus lucidus.
Veratrum album.
Arum pentaphyllum.
Pinellia tuberifera.
Acorus.
Typha angustifolia.
Lemna minor.
Alisma plantago.
Bambusa.
Coix Lachryma.
Imperata.
Equisetum arvense.
Selaginella involvens.
Niphobolus Lingua.
Polypodium Barometz.
Ferns.
Pachyma pinetorum.
Mylitta lapidescens.
Various Mushrooms.
Sargassum.

THE CHINESE CLASSICS.

[illegible] docu[illegible] relating to the plants with which the Ch[illegible] early ages are found in the Chinese clas[illegible] *Shu king*, the *Shi king*, the *Chou li*, the [illegible] which [illegible] here offer a few remark[illegible]

The 書經 Shu king or Classical Book of Historical Records, the most ancient historical work in China, was compiled by Confucius about 500 B. C. Besides some scattered notices on Chinese plants this Classic contains a chapter entitled 禹貢 *Yü kung* or Tribute of Emperor *Yü*, which presents a peculiar interest for us. This is a geographical description of ancient China, referring to about 2200 B. C., in which are enumerated the principal natural productions of each of the nine provinces into which China was then divided.

The 詩經 *Shi king*, or Book of Odes, likewise compiled by Confucius, is replete with names of plants, which however are often difficult to ascertain. There are even special Chinese works dealing with the plants and animals mentioned in the Shi king and the commentaries on them. The oldest work on the subject is the 毛詩艸木鳥獸蟲魚疏 *Mao Shi ts'ao mu niao shou ch'ung yü shu*, Commentary on the herbs, trees, birds, beasts, insects and fishes mentioned in 毛萇 *Mao Ch'ang's* version of the Shi king, in 2 books, by 陸璣 *Lu ki*, literary name 士衡 *Shi heng*, of the kingdom of *Wu*, 200-303 A. D. The original work was lost and that now current was compiled, it is not known when and by whom, mainly from K'ung Ying ta (Dr. Legge, Shi king).

In quoting the Shu king and the Shi king I always refer to the splendid translations by Dr. Legge.

The 周禮 *Chou li*, or Ritual of the Chou dynasty, B. C. 1122-249, gives a good deal of interesting information on Chinese plants, domestic and others. It was written about 1100 B. C. A good French translation of this classic was published by Biot, 1851.

The 禮記 *Li ki*, Book of Rites. Although the matter contained in it is of early origin like that of the other classics, it came to light in its present form about the close of the first century B. C. It is especially the section entitled 月令 *Yüe ling*, Rules for every month of the year, in which names of plants frequently occur and which is often quoted in Chinese botanical works. The Li ki has been commented upon by 鄭玄 Cheng hüan, A. D. 127-200.

This classic has never been completely translated into any European language. The translation of the Li ki by Callery into French, 1853, is only an abstract of the work.

THE 爾 雅 RH YA.

This seems to be at first sight the most interesting among the classics for our purposes of research. It is a Dictionary of terms used in Chinese ancient writings generally ascribed to 周 公 *Chou kung*, the Duke of Chou, about 1100 B. C. It was completed by 子 夏 *Tsz' Hia*, a disciple of Confucius, nearly 700 years later, and remodelled into its present shape by 郭 璞 *Kuo P'o* in the 3rd century.[9] It seems that the Rh ya was principally intended to explain terms occurring in the Shi king (of which, as is known, a considerable part has been lost.) In his commentaries Kuo P'o frequently quotes the Book of Odes and also the *Li sao*, the famous poetical production of *Kü Yüen*, 4th cent. B. C. and the *Kuang ya*, an ancient dictionary, the author of which lived in the middle of the 3rd. cent. (See alph. list Nos. 445, 383.)

The greater half of the matter in the Rh ya, arranged under 19 sections (釋 *shi*, properly: explanation), treats of natural objects. The names of plants are found in the 13th and 14th sections under the heads of 草 *ts'ao*, Herbs and 木 *mu*, Trees. Nearly 300 plants are enumerated there and in other sections as many animals. In some editions the text is accompanied with drawings. In the preface of the illustrated edition of 1802 it is stated that these wood-cuts originally date from the time of the Sung dynasty and that they have been carefully reproduced from a manuscript copy made by one who lived in the time of the Yüan or Mongol period (13th or 14th cent.). According to the History of the Sui dynasty (section on literature, book 32) there existed in the Liang period (6th cent.) two volumes of drawings illustrating the Rh ya, which were made by Kuo P'o, but they had been lost.[10]) [illegible] uently to the time of Kuo P'o 江 灌 *Kiang kuan* prepared a volume of drawings illustrating the Rh ya. See T'ang shu, section on literature. Kiang kuan lived in the 4th cent. (see his biography Tsin shu 83), according to some authorities in the 6th cent. The drawings of the Rh ya now extant are generally very rough and, so far as plants are concerned, seldom enable one to recognize what particular plant is intended.

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[9] [illegible] ant account of the Rh ya by E. C. Bridgman is found in the Chinese [illegible] (1849), p. 169.

[10] [illegible] al drawings of pla [illegible] tant in European collections are those ac [illegible] copy of Diosc [illegible] ria medica, dating from the 5th cent [illegible] Great Vienna [illegible]

The original information given in this ancient dictionary with respect to natural objects is extremely aphoristic and fragmentary, not more than three, sometimes four characters being devoted to each name, and as I understand, these characters represent the book names and the popular names of the plants and animals without other explanations. Each phrase of the Rh ya is followed by the commentary of Kuo P'o. The sounds of uncommon words are always given.

The Rh ya had already been commented upon by several Chinese scholars previous to Kuo P'o. In the History of the Sui (section on literature) three authors of the Han period are mentioned, who had written commentaries on this dictionary, viz: 樊光 *Fan Kuang*, 劉歆 *Liu Hin* (first cent. B. C.) and 李巡 *Li Sün*.

郭璞 *Kuo P'o* was a celebrated scholar and expositor of the Taoist doctrine who lived A. D. 276-324, a native of *Wen hi hien* (Kiang chou, Shansi). His literary appellation was 景純 *King ch'un*. He was invested with the posthumous title 弘農郡守 *Hung nung kün shou* (Prefect of the ancient department of *Hung nung*, in the present Ho nan). See his biography Tsin shu 72. His preface to the Rh ya reads as follows: (see Bridgman l. c.)

This book, the Rh ya, is designed to exhibit the general scope of education, to point out the sources of poetic composition, to collect and arrange the phrases of past generations, and to discriminate the real distinctions between things that seem to be identical.

It is in deed a safe conduct for men of all professions, a key to all arts, a deep fountain for the scientific reader, and a flower garden for the "belles lettres" writers.

If a work be desired that will enlarge our knowledge of all things, free us from every delusion, and extend our acquaintance with the various departments of natural history, there is none so useful as the Rh ya.

The Rh ya had its origin in middle antiquity and was in the highest repute during the Han, when its varied uses were unfolded on the occasion of the disquisition regarding the Leopard rat (豹鼠)[11]

Then the illustrious and erudite scholars, the elegant and master writers of the age, all honored, esteemed and highly appreciated both its principles and its lessons of instruction.

Regardless of my inability and want of knowledge, I commenced the study of it while yet but a young man and zealously and assiduously continued the same twice nine years.

Although many commentators had exercised their talents upon it, yet none of their works were complete. Much in them was confused and erroneous, and some things were omitted and still wanting.

For these reasons I have in my turn undertaken to bring together the meanings of the words and to collect all the ancient explanations. I have extended my researches to the dialects of all the different states of the Empire and made collections from the popular songs and sayings. Having thus collected a great variety of terms and by careful examination ascertained their correct and popular use, I have endeavored to remove all defects and inaccuracies and to put away all that is low and vulgar.

When quotations, which were not common or well understood, have been made, they have been supported by requisite proofs, but all such as seemed plain and easy have been passed over without comment.

Moreover, with a view to prevent all misunderstanding, I have in separate parts indicated the sounds and added drawings.

Thus I have labored hard to make clean and plain the path of learning, earnestly hoping that, by this work, the progress of scholars in future times may be greatly facilitated.—

Some of the ancient names of plants found in the text of the Rh ya are still in use, but the majority of them were unknown even at the time when Kuo P'o lived and he tried therefore to explain what plants were meant, giving their popular names. In all probability he utilized previous commentaries for his explanations. Chinese writers on botany place absolute confidence in the identifications given by Kuo P'o. But a closer investigation of the subject has convinced me that in this respect he proceeded as arbitrarily as the swarms of other Chinese commentators of the classics, and that his statements must be accepted with caution. I have the same mistrust with regard to Chinese identifications of the archaic names of plants as found in the Shi king and other classical writings.

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[11] Compare W. F. Mayers' article on the Mammoth in Chinese records. China Review VI, p. 273.

Another commentary of the Rh ya was published with the title of 爾雅正義 *Rh ya cheng i* by 孫炎 *Sun Yen*, styled also 孫叔然 *Sun Shu yen*, a contemporary of Kuo P'o. Comp. Biograph. Dict. Shang yu lu.

Subsequently to the time of Kuo P'o the Rh ya was commented upon by 邢昺 *Hing Ping* A. D. 932-1010, and by 鄭樵 *Cheng Ts'iao*, A. D. 1108-1162. Compare Sz' k'u ts'üan shu ming mu lu IV, 16. Mayers' Chin. Read. Man. p. 52.

In the 11th century a work on the plan of the Rh ya, an appendix to it, with the title 埤雅 *P'i ya*, in 20 books, was composed by 陸佃 *Lu Tien*, A. D. 1042-1102. Comp. Sz' k'u etc. IV, 17. Mayers l. c. p. 140.

A similar appendix appeared a century later with the name of 爾雅翼 *Rh ya i*, in 32 books. The author of it was 羅願 *Lo Yüan*, styled also 端良 *Tuan liang* and 存齋 *Ts'un ts'i*. He lived in the 12th century. Sung shi 380.—Sz' k'u etc. IV, 17.

I may finally mention here the 山海經 *Shan hai king*; Classic of the Mountains and Seas. It is an ancient geographical description of China of a somewhat fabulous and mythical character. The authorship is generally ascribed to the Emperor *Yü*, B.C. 2200. According to Mr. Wylie (Notes on Chin. lit. p. 35) it is at least as old as the Chou dynasty and probably of a date even anterior to that period. We meet in it with a profusion of names of mountains and rivers unknown now-a-days, and the position of which is indicated only in a general way. Many plants and animals are likewise mentioned in it, but in many cases we can make nothing of these names.

The Shan hai king in 18 books is noticed in the bibliographical section of the History of the Former Han in the catalogue compiled in the 1st century B. C. *Kuo P'o* wrote a commentary on it. The edition now current is in 18 books. Compare Journal Asiatique, 1839: Notice du Chan haï king par M. Bazin (ainé), where some specimens of the work are given.

THE 南方草木狀 NAN FANG TS'AO MU CHUANG.

This is the earliest Chinese treatise dealing with plants and bearing a purely botanical character. The title means: Account of the Flora of the Southern Regions. The author was 嵇含 *Ki Han*, a Minister of State under Hui ti of the Tsin dynasty, A. D. 290—307. He had been previously Governor of Canton. See his biography, Tsin shu 89. This small treatise is not a rare book, it is found in the Han Wei ts'ung shu (Wylie l. c. 209) and other collections of reprints. It is also reproduced in the botanical section of the famous T'u shu tsi ch'eng, books 3, 5, 15, 186. We meet in it with interesting accounts of some trees and other plants known at that time in South-China, some of them brought from distant foreign countries. The plants are treated under the four classes of herbs, forest-trees, fruit-trees, and bamboos, including in all 80 species. Among the plants described there the following can be ascertained:

The Banana.
Jasminum officinale.
Jasminum Sambac.
The Nutmeg-tree.
Canna indica.
Sweet-potato (Batatas).
Betel-leaf.
Long Pepper.
Acorus.
Quisqualis indica.
Sugar-cane.
Phyllodes placentaria, Lour.
Livistonia chinensis.
Clerodendron squamatum.
Brassica napus.
Ipomœa reptans.
Cymbidium ensifolium.
Liquidambar formosana.
Olibanum (brought from western countries).
Ficus retusa.
itter-seeded Cardamom.
namomum Cassia.
cus syriacus.

Lawsonia (Henna).
Aloexylum Agallochum.
Cloves.
Caryota.
Terminalia Chebula.
Cæsalpinia Sappan.
Glyptostrobus heterophyllus.
Cunninghamia sinensis.
Vitex Negundo.
Rattans.
Areca Catechu.
Cocoa-nut.
Myrica sapida.
Nephelium Litchi.
Nephelium Lungan.
Canarium Pimela.
Canarium album.
Coco de Mer.
Averrhoa Carambola.
Various Oranges.
Phyllanthus Emblica.
Aleurites triloba.
Spondias.
Various Bamboos of South-China.

Besides the 80 plants described under separate headings, several other Chinese plants are mentioned "en passant" under the same Chinese names by which they are still known in this country, viz.:

Hibiscus mutabilis.
Vitis vinifera.
Nelumbium speciosum.
Zingiber officinale.
Dioscorea sativa.
Caladium esculentum.
Gardenia florida.
Sterculia platanifolia.
Rhapis flabelliformis (perhaps Chamærops?)
Brassica chinensis.
Sagittaria chinensis.
Arundo phragmites.
Dendrobium moniliforme.
Diospyros Kaki.
Pomegranate.
Eriobotrya japonica.
Althæa sinensis.
Sophora japonica.
Juniperus chinensis.
Cedrela sinensis.
Castanea vesca.
Acacia Julibrissin.
Juglans regia.

A short record of a similar character to the Nan fang ts'ao mu chuang is the 魏王花木志 *Wei wang Hua mu chi*, Notice of the Flowers and Trees of the Prince of Wei (perhaps the Prince of Wei is the author). It has likewise been reprinted in the T'u shu tsi ch'eng l. c. book 5, and as I can infer from the place assigned to it in that Encyclopædia, it seems to belong to the same period (perhaps a century earlier) as the Nan fang ts'ao mu chuang. It is sometimes quoted in the Pen ts'ao kang mu. I have not been able to gather any other information regarding its author or time of publication in any Chinese bibliographical work. Among the 15 plants recorded in it I may mention the following:

The 思惟 *Se' wei* or 貝多 *Pei to* tree, the seeds of which are said to have been brought from India at the time of the Han dynasty, is *Borassus flabelliformis.*—*Magnolia Yulan.*—*Camellia japonica.*—*Hibiscus syriacus.*—*Cinnamomum Cassia.*—*Citrus japonica.*—*Rhododendron.*—*Quisqualis sinensis.*

CHINESE STANDARD WORKS ON MATERIA MEDICA.

I now proceed to review briefly in chronological order the Chinese works on Materia medica (and Natural History) which at different times have been considered the capital treatises in this department. My information regarding these compilations and their authors has for the greater part been derived from the bibliographical notices already mentioned, given by Li Shi chen in the introductory part of the Pen ts'ao kang mu. From these accounts I select the more important statements, occasionally elucidating them by extracts drawn from other quarters. Li Shi chen reviews in all 42 of such works of note on Materia medica. The *Shen nung Pen ts'ao king* (1.), which we have already dwelt upon and which forms the nucleus of all subsequent Chinese treatises on the subject, is placed at the head of the 42 works reviewed, the earlier of which, having long been lost, were known to Li Shi chen only from the accounts and quotations given of them by previous authors. After the Shen nung Pen ts'ao the next in order of time is

2. The 采藥錄 *Ts'ai yao lu*, directions for gathering drugs, in 2 books, by 桐君 *T'ung kün*, one of the ministers of the Emperor Huang ti. This treatise gives also some descriptive accounts of medicinal plants.

3. The 雷公藥對 *Lei kung Yao tui*, Materia medica of *Lei kung*, who was one of the sages employed by the Emperor Huang ti in his labours to perfect the art of healing. This treatise, to which tradition ascribes a high antiquity, was published (from an ancient manuscript, I understand) in 2 books with additional remarks and commentaries by 徐之才 *Sü Chi ts'ai*, a celebrated physician living in the second half of the 6th century, a native of Tan yang (Chin kiang fu). See his biography Pei Ts'i shu 33.

4. The 李氏藥錄 *Li shi Yao lu*, Materia medica of *Li* or 李當之 *Li T'ang chi*, a subject of the Wei dynasty, in the first half of the 3rd century. He was a disciple of the celebrated *Hua T'o* (see note 12).

5. The 吳氏本草 *Wu shi Pen ts'ao*, Materia medica of *Wu* or 吳普 *Wu P'u*, a native of Kuang ling (present prefecture of Yang chou fu in Kiang su), likewise a subject of the Wei, first half of the 3rd century, and a disciple of Hua T'o. He compiled his treatise, one book, from the works of the Emperors *Shen nung* and *Huang ti*, and the writings of *K'i Po*, *T'ung kün* (see above 2), *Lei kung* (see above 3), *Pien Ts'iao*, *Hua T'o*,[12] *Li Tang chi* (see above 4).

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[12] The above names refer to ancient celebrated Chinese physicians. Besides the primeval Emperors—神農 *Shen nung* (styled also 藥聖 *Yao sheng*, the sage of

6. The 炮炙論 *P'ao chi lun* by 雷公 *Lei kung* or properly 雷斆 *Lei Hiao*, who is not to be confounded with the Lei kung

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medicines) and 黃帝 *Hwang ti* (styled also 軒轅 *Hien yüan* and 藥王 *Yao wang*, prince of medicines), already spoken of—the 十大名醫 *shi ta ming i* or ten celebrated Doctors are worshipped in the chief medical temple in Peking, called 藥王廟 *Yao wang miao*, and in other temples. See Dr. J. Dudgeon's interesting paper on Medical Divinities, Chin. Recorder 1870 III, p. 40. On the tablets in that temple we find the following names of famous physicians. I add some biographical notices gathered from various sources.

1. 岐伯 *K'i Po*, styled also 藥祖 *Yao tsu* (ancestor of medicines), a native of Northern China, one of the assistants of Emperor Huang ti, his tutor in medical investigations and the reputed founder of the art of healing. Hence the phrase 岐黃術, the science of K'i po and Huang ti for medical skill. See Mayers' Chin. Read. Man. p. 97. The Pen ts'ao kang mu, I. b. fol. 12 sq., gives some specimens of K'i Po's views on the nature of drugs. In the section on literature in the Sui shu mention is made of a work named 岐伯經 *K'i Po king*.

2. 雷公 *Lei kung*, a physician of the time of Huang ti. See above No. 3.

3. 扁鵲 *Pien Ts'iao*, likewise one of the physicians of Huang ti, but according to another tradition a famous physician of the 6th century B. C. See his biography in the Shi ki (Histor. record) book 105, and Mayers' Chin. Read. Man. p. 172. Pien ts'iao, known also under the name of 秦越人 *Ts'in yüe jen*, was a native of 渤海 *Po hai* (in the present province of Chihli, Ho kien fu), but subsequently took up his abode in the state of *Lu*, wherefore he is sometimes styled 盧醫 *Lu i* (the physician of Lu). He is said to have first gained a knowledge of the internal parts of the body. The theory of the pulse is likewise derived from his discoveries. A medical treatise *nan king* (on difficult medical questions) is attributed to him. See alphab. list of works, 562.

4. 淳于意 *Ch'un Yü i*, an official of the time of Emperor Wen ti (179—156 B. C.), having charge of the public granaries in *Ts'i*, and hence entitled 太倉公 *T'ai ts'ang kung*. See Mayers' Chin. Read. Man. p. 37; Shi ki, book 105, where his biography is found. He devoted himself to the study of the art of medicine, in which he attained to wondrous skill. He has left a collection of medical prescriptions. See alph. list of works, 849.

5. 張仲景 *Chang Chung king*, sometimes styled also 機仲景 *Ki Chung king* or 張機 *Chang Ki*. Wen hien t'ung k'ao 222, Wylie, Chin. lit. 80, 82. He was a native of 南陽 *Nan yang* (province of Honan) and prefect of *Ch'ang sha* (Hu nan) during the later Han, it seems end of the second century. He was a celebrated physician and has left a treatise on fevers and several other medical writings. See alph. list of works, 678, 828, 829.

6. 華陀 *Hua T'o*, literary appellation 元化 *Yüan hua*, second century and first half of the third. A native of 沛國譙 *P'ei kuo ts'iao* (present Po chou, An hui), a renowned physician, the Esculapius of China. Mayers' Chin. Read. Man. p. 68; Chin. Repos. II. 275; Hou Han shu, book 112b. Hua t'o is said to have been versed in all the secrets of Taoism, and to have been especially successful in surgical operations. He is reputed to have relieved the great *Ts'ao ts'ao* (the founder of the Wei dynasty, died 220) from a cerebral disease by means of an operation. He was also in possession of an anaesthetic agent for producing insensibility during surgical

of Huang ti's time (see above 3), for *Lei Hiao* with the title *Lei kung* was an author of the Liu Sung dynasty (A. D. 420—477). The P'ao chi lun was a treatise in 3 books, explaining the medical virtues of 300 drugs and giving directions for the preparation of medicines.

7. We now come to one of the most important ancient treatises on Materia medica, the 名醫別錄 *Ming i pie lu*,—as this title implies, an account of drugs or medicines recommended (after the time of Shen nung) by eminent physicians. In the Pen ts'ao kang mu this work is generally quoted with the abbreviated title of *Pie lu*. The author of it was 陶宏景 *T'ao Hung king*, A. D. 452—536 (see his biography Liang shu 51), one of the most celebrated adepts in the mysteries of Taoism and a distinguished

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operations. In his biography this medicine is called 麻沸散 *ma fei san*, which has been erroneously translated by Stan. Julien, Tatarinov and others by "a preparation of Hemp." The character *ma* means indeed Hemp, but is also used to designate in the popular language "insensibility," and 麻藥 *ma yao* is to be translated by "anaesthetic prescription." The prescriptions which in Peking go by the name of ma yao contain Aconite, the tubers of some poisonous plants of the Arum family. Henbane, sometimes Datura. Hua t'o fell afterwards a victim to political intrigue and perished by *Ts'ao ts'ao's* command, more than a hundred years old. Several medical treatises are attributed to him. See alph. list 99, 189.

7. 王叔和 *Wang Shu ho*, according to the Wen hien t'ung k'ao a native of 高平 *Kao p'ing* (province of Shantung). He was Court physician during the Western Ts'in dynasty (A. D. 265—317). He wrote a celebrated treatise on the pulse. See alph. list 528.

8. 葛洪 *Ko Hung*, a native of Kü yung (Kiang ning fu, Kiangsu), a celebrated Taoist and Alchymist, died A. D. 330. Literary name 抱朴子 *Pao p'o tsz'*. Mayers' Chin. Read. Man. p. 86; Tsin shu 72. About his works on Alchymy and Medicine see alph. list 63, 579, 694, 695, 769.

9. 皇甫 *Huang Fu*, and 10 李士眞 *Li Shi chen*. I have not been able to find these names in Chinese biographical dictionaries or medical works. Perhaps 皇甫謐 *Huang Fu mi*, a celebrated scholar A. D. 215—282, who has also left some works on medicine, and 李時珍 *Li Shi chen*, the author of the Pen ts'ao kang mu.

In the temple *Tung yo miao*, near Peking, there are also tablets of the ten celebrated doctors, and here we find instead of Huang fu and Li shi chen two other names, viz.: 孫思邈 *Sun Sze mo* and 韋慈藏 *Wei Tsz' tsang*. The first was a celebrated Taoist and physician of the 7th century (see further on works on Materia medica No. 9), the second a famous Court physician in the beginning of the 8th century. He is mentioned in the Kiu T'ang shu 191.

For biographical notices regarding other celebrated Chinese physicians (Bridgman's Chin. Chrest. p. 498, 499) see the alph. list.

physician, a native of 秣陵 *Mo ling* (near the present Nan king). The Emperor Kao ti of the Ts'i dynasty, 479—482, made him preceptor of the Imperial princes; and the Emperor Wu ti of the Liang, 502—550, was at one time among the number of his disciples. T'ao Hung king subsequently retired into seclusion among the recesses of the mountain 句曲山 *Kou k'ü shan*,[12a] where the eighth of the haunted grottoes of the Taoists, the 華陽洞 *Hua yang tung* is situated, and devoted himself to meditation and study. The Emperor Wu ti endeavoured in vain to attract him into public life, and was accustomed to consult him. (Mayers' Chin. Read. Man. p. 214). T'ao Hung king is also known under the name of 陶隱居 *T'ao yin kü* (T'ao the hermit) or 華陽眞人 *Hua yang chen jen* (the saint of Hua yang). Besides this he is sometimes styled 通明 *T'ung ming* (his literary appellation).

Li Shi chen states that the Shen nung Pen ts'ao king specifies in three books 365 drugs in accordance with the number of days. T'ao Hung king in the Pie lu added 365 new medicines recommended by famous physicians of the Han and Wei dynasties. This treatise comprised seven books. The text of Shen nung's Materia medica was represented in it by red characters, whilst T'ao Hung king's additions were written in black characters. He presented his composition to the Emperor Wu ti of the Liang. One chapter of the Pie lu, treating of the preparation of medicines, is reproduced in the Pen ts'ao kang mu, book 1a fol. 55 sq., and was translated into French by Visdelou. Cnf. Du Halde: La Chine III, 453—459.

8. The 藥總訣 *Yao tsung küe*, another treatise on medicines, in two books, is a production of the same author.

9. The 千金食治 *Ts'ien kin shi chi*, a treatise on articles of food and the preservation of health by 孫思邈 *Sun Sz' mo*, an erudite scholar deeply versed in Taoist lore and in the art of healing, who flourished at the commencement of the 7th century A. D. Mayers' Chin. Read. Man. p. 194. He was a native of

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[12a] The *Kou k'ü shan*, called also 茅山 *Mao shan*, is one of the reputed mountains of the Taoists. According to Chinese maps it is situated south-east of Kü yung hien (Kiang ning fu [Nanking], Kiang su).

華原 *Hua yüan* (the present Yao chou, Si an fu, Shensi) and retired into seclusion on the 太白山 *T'ai po shan.*[13] He was induced circa A. D. 630 to leave his mountain hermitage for the court of Emperor T'ai Tsung, where he performed many miracles. Sun Sz' mo is the author of numerous medical treatises. See alph. list 31, 707, 934—937. He is one of the celebrated doctors of China and is worshipped in the state temples among the divinities of the healing art. He is styled also 孫眞人 *Sun chen jen.*

10. The 藥性本草 *Yao sing pen ts'ao*, on the medical virtues of drugs, in four books, by 甄權 *Chen Kuan*, a native of Hü chou (Honan), end of the 6th and first half of the 7th century. He died under the reign of T'ai tsung (A. D. 627—50) at the age of 120 years. See his biography in the T'ang shu 252. He also wrote a treatise with the title 藥性論 *Yao sing lun* and other medical works.

11. The 唐本草 *T'ang Pen ts'ao*, or Materia medica of the T'ang dynasty. The Emperor Kao tsung issued about A. D. 650 a mandate for the revision and completion of the Shen nung Pen ts'ao and *T'ao yin kü*'s commentaries and additions (see above 7). This was undertaken by a commission under the superintendence of 李勣 *Li tsi*, a high officer. The new work comprised seven books and was generally styled 英公唐本草 the *T'ang Pen ts'ao* of *Ying kung*, the latter being a title of *Li tsi.* A few years later 蘇恭 *Su Kung*, another high official, was appointed to revise and to complete it once more. 長孫無忌 *Chang Sun wu ki* and 22 others were associated with him in the work. They added 114 new objects, and classed the whole under the heads of Minerals, Man, Quadrupeds, Birds, Insects, Fishes, Cereals, Vegetables, Fruits, Trees, Herbs, and natural objects not employed in medicine. This was called the 唐新本草 *T'ang Sin pen ts'ao* or New Pen ts'ao of the T'ang. The descriptive part of it extended to 20 books, with one book for the index. To this were added

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[13] The *T'ai po shan*, where one of the haunted grottoes of the Taoists is situated, lies in the south-western corner of the prefecture of Si an fu.

25 books of pictorial illustrations representing natural objects, and 7 books of annotations explaining the drawings.[14]

12. The 食療本草 *Shi liao pen ts'ao*, in 13 books, by 孟詵 *Meng Shen*, a functionary of the T'ang, in the second half of the 7th century, a native of Ju chou (Honan). See his biography T'ang shu 252.

13. The 本草拾遺 *Pen ts'ao shi i*, in 10 books. This title may be translated by: Omissions in previous works of Materia medica, supplied by 陳藏器 *Ch'en Ts'ang k'i*, a functionary in San yüan hien (Si an fu, Shensi). He lived in the first half of the 8th century.

14. The 海藥本草 *Hai yao pen ts'ao*, an account of the drugs of southern countries in 6 books, by 李珣 *Li Sün*. Second half of the 8th century.

Li Shi chen mentions yet another treatise, of the same period it seems, dealing with foreign drugs, which has been lost. Its title was 胡本草 *Hu Pen ts'ao*, Materia medica of the *Hu* (western nations or India), in 7 books, by 鄭虔 *Cheng K'ien*.

15. The 四聲本草 *Sz' sheng pen ts'ao*, in 5 books, by 蕭炳 *Siao Ping*, a scholar of the T'ang period (7th to 9th century). In this treatise the matter is arranged according to the four sounds (sz' sheng) of Chinese pronunciation.

16. The 刪繁本草 *Shan fan pen ts'ao*, in 5 books, by 楊損之 *Yang Sun chi*, a physician and functionary in the second half of the 8th century, a native of 潤州 *Jun chou* (the present Chin kiang fu, Kiangsu). The author endeavours to eliminate all useless matter found in the previous treatises on Materia medica.

17. The 本草音義 *Pen ts'ao yin i*, in 2 books, by 李含光 *Li Han kuang*, a subject of the T'ang dynasty (A. D. 618—907).

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[14] These drawings are not the first pictorial attempt of the Chinese in this department. As we have seen the Rh ya, commented upon by Kuo Po in the 3rd century, was accompanied with drawings.

18. The 本草性事類 *Pen ts'ao sing shi lei*, in one book, by 杜善方 *Tu Shun fang*, a physician of the Chinese metropolis. Time unknown. But Li Shi chen ranges him among the T'ang authors.

19. The 食性本草 *Shi sing pen ts'ao*, in 10 books, by 陳士良 *Ch'en Shi liang*, a learned physician of Kien chou (Pao ning fu, Sz' ch'uan) in the 10th century. This is a compilation from previous works on Materia medica, with some additional matter on dietetic food.

20. The 蜀本草 *Shu Pen ts'ao* was compiled about the middle of the 10th century by order of 孟昶 *Meng Ch'ang*, prince of *Shu* (the modern Sz' ch'uan, then governed by an independent ruler). The prince entrusted with this task 韓保昇 *Han Pao sheng*, a Doctor of the Academy, and some distinguished physicians, and wrote himself the preface to the work, which was published in 20 books, illustrated by wood-cuts. It professes to be a revision and an amplification of the T'ang Pen ts'ao (see 11).

21. The 日華諸家本草 *Ji hua Chu kia pen ts'ao*, published about A. D. 970, in 20 books, by 大明 *Ta Ming* (literary appellation *Ji hua*), a native of Tung lai (Shantung province).

22. The 開寶本草 *K'ai pao Pen ts'ao*, or Materia medica of the period K'ai pao (A. D. 968—976) of the Sung dynasty, drawn up by command of the first emperor of this dynasty by 劉翰 *Liu Han*, Court physician, and 馬志 *Ma Chi*, a Taoist scholar and physician, who were assisted in the completion of their task by nine other scholars. They brought together in this work the principal matter of all previous treatises on Materia medica, and described 133 new specimens. In all there are 983 objects detailed in it.

23. The 嘉祐補註本草 *Kia yu Pu chu Pen ts'ao*, the Pen ts'ao revised and commented upon, published during the period Kia yu (of the Sung). It was compiled in compliance with an

Imperial order in A. D. 1057, in 20 books, by 掌禹錫 *Chang Yü si*, a high functionary, assisted by 林億 *Lin i*, another high official, and several physicians of note. Chang Yü si, a distinguished scholar, was a native of *Yen ch'eng hien* (Hü chou, Honan). 1082 articles are detailed in this treatise, 82 of them being new.

24. The 圖經本草 *T'u king pen ts'ao*, or illustrated Pen ts'ao, in 21 books, published by Imperial order, was compiled by 蘇頌 *Su Sung*, a high functionary and distinguished scholar, a native of Ts'üan chou in Fu kien, after the Kia yu pen ts'ao (see 23) had been completed. The drawings of the natural productions of China in this work had been executed by Imperial command from nature in the various districts of the Empire. Use had also been made of similar earlier drawings dating from the T'ang period (see above 11). This illustrated Materia medica comprised 21 books.

25. The 本草別說 *Pen ts'ao pie shuo*, the production of 陳承 *Ch'en Ch'eng*, a distinguished physician, was published about A. D. 1090. It is a revised combination of the Pen ts'ao and the *T'u king* (24).

26. The 證類本草 *Cheng lei pen ts'ao*, known also under the name of 大觀本草 *Ta kuan Pen ts'ao*, for it was compiled in the second year of the reign of Ta kuan, A. D. 1108, by 唐慎微 *T'ang Shen wei*, a physician of Shu (the present Sz' ch'uan). This work unites all that was most valuable in the earlier treatises on Materia medica. The matter is arranged in 31 chapters under the heads of: Precious stones, Metals, Herbs, Cereals, Vegetables, Fruits, Trees, Insects, Fishes, Birds, Quadrupeds, Man. In all 1455 objects are described. 294 plates of drawings are added. The Ta kuan Pen ts'ao is still extant, but I have not come across it. Klaproth was in possession of the first book of it. See Catalogue des livres (chinois etc.) de Klaproth No. 144, and Sz' k'u ts'üan shu 103, fol. 35. Klaproth's edition was of 1469 A. D.

27. The 本草衍義 *Pen ts'ao yen i*, published about A. D. 1115, in 3 books, by 寇宗奭 *K'ou Tsung shi*, a celebrated physician of the Sung dynasty.

28. The 潔古珍珠囊 *Kie ku Chen chu nang* (Kie ku's Bag of pearls), one book. *Kie ku* is the literary name of 張元素 *Chang Yüan su*, a celebrated physician during the Kin dynasty (A. D. 1115—1234). See his biography Kin shi 131. He was a native of 易州 *I chou* (Chihli province) and wrote several other medical treatises.[15]

29. The 用藥法象 *Yung yao fa siang*, one book, on the use of drugs, by 李杲 *Li Kao*, a celebrated physician of Chen ting (Chihli). Literary appellation: 明之自 *Ming chi tsz'*. He is more generally known by his pseudonym 東垣 *Tung yüan* and flourished in the 12th and 13th centuries. He was a pupil of Kie ku (see 28), and is the author of many other medical treatises. See alph. list 222, 414, 612, 616, 737, and his biography, Yüan shi 203.

30. The 湯液本草 *T'ang i pen ts'ao*, in 2 books, by 王好古 *Wang Hao ku*, a learned physician in the first half of the 13th century, the author of several medical treatises. See alph. list 225, 228, 969, 1093, and Wylie l. c. 79. His literary appellation was 進之 *Tsin chi*, his pseudonym 海藏 *Hai ts'ang*.

31. The 日用本草 *Ji yung pen ts'ao*, in 8 books, by 吳瑞 *Wu Shui*, a physician of Hai ning chou (Hang chou fu, Chekiang) of the Mongol period.

32. The 本草歌括 *Pen ts'ao ko kua*. Judging from the title it seems to be a Materia medica arranged in verses. The author of it was 胡仕 *Hu Shi*, a physician of the Mongol period.

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[15] He is not to be confounded with a famous physician of the same name, *Chang Kie ku*, also a native of North-China, who lived during the Ming dynasty. See his biogr. Ming shi 299.

33. The 本草衍義補遺 *Pen ts'ao yen i pu i*, a revision and amplification of No. 27, by 朱震亨 *Chu Chen heng*, a celebrated physician and Taoist scholar, who lived in the second half of the 14th century. Literary appellation 彥修 *Yen siu*, but he is more generally known under the name of 丹溪 *Tan k'i*. He was a native of Yi wu (Kin hua fu in Chekiang). His biography is given in the Yüan shi, 189. For his other medical treatises see alph. list 217, 348, 369, 788.

34. The 本草發揮 *Pen ts'ao fa hui*, in 3 books, by 徐彥純 *Sü Yen shun*. Literary appellation 用誠 *Yung ch'eng*. He was a pupil of Chu Chen heng (see 33).

35. THE 救荒本草 KIU HUANG PEN TS'AO.

This is a treatise on the plants fit for supporting life in time of scarcity by 周定王 *Chou ting wang* (literary appellation 朱橚 *Chu siao*; pseudonym 誠齋 *Ch'eng chai*), an Imperial Prince, the fifth son of the first Ming Emperor Hung Wu, who reigned A. D. 1368—1398. See Ming shi 116, Biographies of the Imperial princes. Chou ting wang is noticed there as the author of the above work. But the author of the Pen ts'ao kang mu attributes the authorship to 周憲王 *Chou hien wang*, who was a son of Chou ting wang. As the great Catalogue Sz' k'u ts'üan shu explains, C. II. 8, this error arose from the circumstance that Chou ting wang's name does not appear in the original edition.

We learn from Chou ting wang's biography that he dwelt for a long time, from 1382 to about 1400, in K'ai feng fu (Honan), where his appanages were situated; and then removed to the province of Yün nan. He died in 1425; his son Chou hien wang in 1439.

Chou ting wang, who is also known as the author of several writings on medical subjects (see alph. list 642, 793), took a great interest in botany and made special study of the wild and cultivated plants suitable for food; his information on the subject having chiefly been derived from the experience of peasants and farmers. The original edition of the Kiu huang pen ts'ao was first published in the beginning of the 15th century, in 2 books;

a second edition in 4 books, the one now current, appeared in 1559 with a preface by 陸東 *Lu tung*. This edition was in the possession of Klaproth (see the catalogue of his Chinese and other books No. 145). It was reprinted at the end of the well-known Thesaurus of Agriculture, the Nung ch'eng ts'üan shu, of which we shall speak further on.

The Kiu huang pen ts'ao is not a simple compilation from earlier treatises, but for the greater part an original work based upon the author's own experience. As his principal abode was in K'ai feng fu, all the plants recorded in his treatise belong to the Flora of Honan, or are cultivated there. The districts and mountains mentioned in it are generally situated south of the Yellow River, and west and south-west of K'ai feng fu. The name of the district of 密 *Mi (hien)* occurs frequently, and also that of 輝 *Hui (hien)*, which is north of the Yellow River. The province of Honan seems to be very rich in interesting plants, especially mountain plants, drugs, but has never been explored by western botanical collectors.

The Kiu huang pen ts'ao describes in all 414 plants, 138 of which were recorded in previous works on Materia medica, 276 being new. The matter is arranged in five classes, viz.: Herbs, Trees, Cereals, Fruits, and Vegetables. Each plant is represented by an original drawing. As far as I can judge from the plants known to me these drawings are tolerably true to nature. It must not be forgotten that the original wood-cuts date from a time when engravings on wood were altogether unknown in Europe.[16] Many of the delineations in this Chinese work are certainly superior to some European wood-cuts of the 17th century, as, for instance, those in Bontius' Hist. nat. Indiæ orient. 1629.

Among the plants depicted and described in the ancient Chinese treatise the following can be ascertained. I enumerate them in the order followed in the Kiu huang pen ts'ao, grouping the species according to the parts of the plant used for food.

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[16] According to E. Meyer's Geschichte der Botanik, IV, 278, the earliest European wood-cuts representing plants are found in Cunrat von Megenberg's Buch der Natur, the first edition of which was printed in Augsburg, in 1475.

A. Herbs.

a. *Leaves used for Food.*

Cnicus.
Carduus.
Petasites japonicus.
Polygonum aviculare.
Isatis indigofera.
Dianthus Seguieri.
Hemerocallis graminea.
Plantago major.
Polygonum orientale.
Astragalus.
Aristolochia recurvilabra.
Inula chinensis.
Oxalis corniculata.
Cnidium Monnieri.
Fœniculum vulgare.
Bupleurum falcatum.
Gentiana.
Poterium officinale.
Angelica.
Humulus japonicus.
Incarvillea sinensis.
Platycodon grandiflorum.

Aster.
Siegesbeckia orientalis.
Alisma Plantago.
Commelyna communis.
Scorzonera.
Viola.
Artemisia vulgaris.
Calendula officinalis.
Sedum.
Balsamine hortensis.
Chelidonium majus.
Ranunculus.
Cuscuta chinensis.
Agriophyllum ?
Epilobium.
Potentilla.
Rosa.
Syncilesis aconitifolia.
Vitis heterophylla.
Hibiscus ternatus.
Metaplexis Stauntonii.
Geranium.

b. *Roots.*

Lilium tigrinum.
Polygonatum officinale.
Asparagus lucidus.
Phytolacca acinosa.
Ophiopogon japonicus.

Bœhmeria nivea.
Atractylis chinensis.
Acorus.
Barnardia scilloides.
Dioscorea (wild species).

c. *Fruits or Seeds.*

Coix Lachryma.
Tribulus terrestris.
Sida tiliæfolia.
Echinochloa Crus galli.
Eleusine Coracana.

Thladiantha dubia.
Luffa ægyptiaca.
Vincetoxicum sibiricum.
Momordica Charantia.
Duchesnia fragaroides.

d. *Leaves and Fruits.*

Rumex crispus.
Xanthium Strumarium.
Physalis Alkekengi.
Rubia cordifolia.

Silene.
Vincetoxicum.
Solanum ?
Sphærophysa.

e. *Roots and (generally young, tender) Leaves.*

Rehmannia glutinosa.
Arctium Lappa.
Polygala sibirica.
Adenophora.
Endotropis caudata.
Algæ variæ.
Scirpus lacustris.
Typha.

Arundo phragmites.
Imperata.
Polygonum multiflorum.
Trichosanthes palmata.
Chrysanthemum indicum.
Lonicera chinensis.
Cassia Sophera.
Sparganium.

f. *Stem.*

Limnanthemum nymphoides.

Sagittaria.

g. *Sprouts and Seeds.*

Hydropyrum latifolium.

B. Trees (and Shrubs).

a. *Leaves.*

Camellia Thea.
Acacia Julibrissin.
Hibiscus syriacus.
Populus alba.
Rhus Cotinus.
Cedrela sinensis.

Ligustrum.
Quercus.
Populus suaveolens.
Zanthoxylum Bungei.
Kœlreuteria paniculata.
Tilia.

b. *Fruits.*

Zizyphus Lotus.
Quercus chinensis.
Vitex.
Cratægus pinnatifida.

Ficus Carica.
Hovenia dulcis.
Galls of Celtis sinensis.

c. *Leaves and Fruits.*

Lycium chinense.
Thuja orientalis.

Gleditschia sinensis.
Broussonetia papyrifera.

d. *Flowers.*

Chimonanthus fragrans.
Wisteria chinensis.

Catalpa Bungei.
Sophora japonica.

e. *Flowers, Leaves and Fruits.*

Pyrus betulæfolia.

Xanthoceras sorbifolia.

f. *Leaves, Bark and Fruits.*

Morus alba.

Ulmus pumila.

g. *Young Shoots.*

Bambusa.

C. Cereals and the like. Young Leaves and Seeds used for Food.

Various wild leguminous plants.
Vicia Faba.
Fagopyrum emarginatum.
Papaver Rhœas.
Cannabis sativa.

Sesamum indicum.
Soja hispida.
Perilla ocimoides.
Dolichos sinensis.
Chenopodium.

D. Cultivated Fruits and Tubers.

a. *Fruits.*

Prunus pseudocerasus.
Juglans regia.
Diospyros Kaki.
Pyrus sinensis.
Vitis vinifera.
Prunus domestica.

Cydonia sinensis.
Eriobotrya or Mespilus.
Prunus japonica.
Trapa.
Diospyros Lotus.
Wild Vine with edible fruit.

b. *Fruits and Leaves.*

Punica granatum.
Prunus Armeniaca.
Zizyphus vulgaris.

Amygdalus Persica.
Pyrus spectabilis.

c. *Roots (Tubers).*

Colocasia esculenta.

Eleocharis tuberosa.

d. *Roots and Fruits (Seeds).*

Nelumbium speciosum.

Euryale ferox.

E. Vegetables.

a. *Leaves.*

Brassica chinensis, var. oleifera.
Amaranthus Blitum.
Sonchus arvensis.
Portulacca oleracea.
Lactuca denticulata.
Beta vulgaris.
Chrysanthemum coronarium.
Malva verticillata.
Medicago sativa.
Mentha arvensis.
Mentha, other spec.
Amaranthus tricolor.
Allium victoriale.
Thlaspi arvense.
Lactuca squarrosa.
Taraxacum officinale.

b. *Roots.*

Stachys affinis.

c. *Roots and Leaves.*

Viviparous cultivated Allium and other wild species.

d. *Leaves and Fruits.*

Capsella Bursa pastoris.
Ocimum.
Chenopodium album.

e. *Roots and Fruits.*

Dioscorea sativa.

36. The 庚辛玉冊 *Keng sin yü ts'e*, in 2 books, compiled about 1430 from various Taoist works, enumerating under 541 heads the natural objects employed in alchemy. The author of it was 寧獻王 *Ning hien wang*, also an Imperial Prince, the 17th son of Hung Wu. See Ming shi 117, Biographies of the Princes. His pseudonym was 臞仙 *K'ü sien*. He was a man of great learning and well versed in Taoism, Alchemy, Medicine, Agriculture and Horticulture. He wrote many works, which in all extend to several hundred books. See alph. list 318, 319, 607, 742.

37. The 本草集要 *Pen ts'ao tsi yao*, in 8 books, an epitome of the Pen ts'ao, published towards the end of the 15th century by 王綸 *Wang Lun*, a native of Tsz' ki (Ning po fu). See his biography, Ming shi 299. Literary name 汝言 *Ju jen*; pseudonym 節齋 *Tsie chai*.

38. The 食物本草 *Shi wu pen ts'ao*, in 2 books, by 汪穎 *Wang Ying*, a native of Kiang ling (King chou fu, Hupei), prefect of Kiu kiang during the Ming. It was published in the beginning of the 16th century and is based upon a previous work

by 盧和 *Lu Ho:* On the substances employed for food.[17] About Lu Ho see list of works 857.

39. The 食鑑本草 *Shi kien pen ts'ao,* a treatise of the same character as the preceding, by 寧原 *Ning Yüan,* published during the reign of Kia tsing (1522—67).

40. The 本草會編 *Pen ts'ao hui pien,* in 20 books, published likewise during the reign of Kia tsing, by 汪機 *Wang Ki,* a celebrated physician of that period, a native of K'i men (Hui chou fu, An hui). Literary appellation 省之 *Sheng chi.* His biography Ming shi, 299.

41. The 本草蒙筌 *Pen ts'ao meng ts'üan,* in 12 books, published towards the end of the Kia tsing period, about 1567, by 陳嘉謨 *Ch'en Kia mo,* likewise a physician of K'i men. Literary appellation 廷采 *T'ing ts'ai.*

42. THE 本草綱目 PEN TS'AO KANG MU.

This celebrated Chinese Materia medica, written more than 300 years ago, which we are now about to review, is well known also in Europe. Translations from it have frequently been published by European sinologues. It forms the type of all the Chinese productions of this class, is held in high esteem by the Chinese, and represents indeed the most important native work on Materia medica and Natural History. It is the first treatise of this kind in which the matter is more critically treated.

李時珍 *Li Shi chen,* the famous author of the Pen ts'ao kang mu, was born at 蘄州 K'i chou in Hu pei, probably in the first quarter of the 16th century, and died towards the close of the same century. His literary name was 東璧 *Tung pi.* He wrote also under the pseudonym of 瀕湖 *Pin hu.* As was the case with the majority of the early Chinese physicians of note, Li Shi chen was not a professional medical man, but a civil functionary and magistrate of the district of 蓬溪 *P'eng k'i* (T'ung ch'uan fu, Sz' ch'uan).[18] Besides his principal work, the Pen ts'ao kang mu, he left several medical treatises mentioned in the catalogue Sz' k'u ts'üan shu ming mu lu X, 17, 18. See also alph. list 218, 916, and Li Shi chen's biography, Ming shi 299.

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[17] There is another treatise with the same title by 胡文煥 *Hu Wen huan,* also of the Ming period. See the catalogue Hui k'o shu mu II, 37.

Li Shi chen began the compilation of the Pen ts'ao kang mu in 1552, and after 26 years' labour he completed it in 1578. He wrote out the manuscript three times before he was satisfied to give it out as complete. The author died before it was published, and his son 李建元 *Li Kien yüan* presented the manuscript to the Emperor, in 1596, who ordered it to be printed. Several editions have successively been issued. The earliest now extant is, it seems, that of Shun chi 15 (A. D. 1658). All editions which I have had an opportunity of examining are printed on indifferent paper and are full of misprints, which make the book very inconvenient for reference. The original edition of the Pen ts'ao kang mu was headed by a preface from the pen of 王世貞 *Wang Shi chen*, and dated 1590. It is followed by another preface by Li Shi chen's son, dated 1596, and after this by a general index of the 52 books (chapters) of the work, enumerating the 16 divisions and the 62 classes under which the whole matter is arranged.

We find next two books of pictorial illustrations which, it would appear, have been borrowed from previous works. These wood-cuts, amounting in number to more than 1100, represent minerals, plants, and animals. But they are so rude that it is very seldom that any conclusion can be drawn from them.

The first chapter is taken up with a list of the works and authors, from whom extracts have been made by Li Shi chen for the compilation of the Pen ts'ao kang mu. It begins with a critical review of the 42 capital works on Materia medica published at different times, and then gives a dry list of medical authors and works, and miscellaneous historical, geographical, and other publications, 950 in number. I shall speak more in detail of this list in another chapter.

The next chapter is devoted to introductory observations on

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[18] Previously he had been Offerer of Sacrifices at the Court of one of the Imperial princes (楚王府奉祠).

Materia medica, the nature and properties of medicines, and to general directions for their prescription. The Chinese system of Pharmacology is explained in this chapter. Many quotations from the early writers on the subject are given, illustrating the views entertained up to the present time by the Chinese on the medical virtues of drugs.

The 3rd and 4th chapters comprehend an enumeration of the various diseases, and the medicines suitable for their treatment (百病主治藥).

The rest of the Pen ts'ao kang mu, chapters 5—52, is occupied by accounts of drugs and natural objects, and their use as medicines. These are arranged under 16 部 *pu* or divisions, and 62 類 *lei* or classes, which comprise in all 1892 種 *chung* or species. 374 of the latter are recorded for the first time by Li Shi chen. 8160 prescriptions are given in connection with these drugs.

The 16 *pu* or divisions are:

A. Inanimate substances.

1. Water.
2. Fire.
3. Earth.
4. Metals and Stones.

} Chap. 5—11.

B. Plants. Chap. 12—36.

1. Herbs.
2. Grains.
3. Vegetables.
4. Fruits.
5. Trees.

One chapter (37) is devoted to garments and domestic utensils appertaining to medicine.

C. Animals. Chap. 38—52.

1. Insects.
2. Scaly Animals (Dragons, Serpents, Fishes).
3. Shelly Animals (Tortoises, Mollusks).
4. Birds.
5. Quadrupeds.
6. Man.

To convey some idea of the manner in which plants are grouped in the Pen ts'ao kang mu I subjoin a synoptical table of the botanical section of the work, giving the scientific names of some of the plants recorded there under the different divisions.

I. 草部 *Ts'ao pu.* Herbs.

1. 山草 *Shan ts'ao.* Mountain plants. 78 species.

Ginseng.
Liquorice.
Sophora flavescens.
Adenophora.
Platycodon grandiflorum.
Polygonatum officinale.
Anemarrhena asphodeloides.
Orobanche, various spec.
Atractylis chinensis.
Polypodium Barometz.
Other Ferns.
Polygala sibirica and tenuifolia.

Scrophularia.
Poterium officinale.
Salvia miltiorhiza.
Lithospermum erythroxylum.
Scutellaria viscidula.
Bupleurum falcatum.
Angelica.
Dictamnus Fraxinella.
Narcissus Tazetta.
Gentiana.
Asarum.
Polygonum Bistorta.

2. 芳草 *Fang ts'ao.* Fragrant plants. 60 species

Pæonia albiflora.
Pæonia Moutan.
Various kinds of Cardamom.
Long Pepper.
Betel Pepper.
Nutmeg.
Turmeric.
Galangal.

Cyperus rotundus.
Jasminum Sambac.
Jasminum officinale.
Lawsonia alba.
Blumea balsamifera.
Mentha arvensis.
Perilla ocimoides.

3. 隰草 *Shi ts'ao.* Marsh plants. 187 species.

Chrysanthemum indicum.
Aster, various spec.
Artemisia vulgaris.
Artemisia annua.
Incarvillea sinensis.
Leonurus sibiricus.
Inula chinensis.
Carthamus tinctorius.
Saffron.
Carduus crispus.
Bœhmeria nivea.
Sida tiliæfolia.
Trigonella Fœnum græcum.
Iris oxypetala.
Arctium Lappa.
Xanthium Strumarium.
Carpesium abrotanoides.
Siegesbeckia orientalis.
Arundo Phragmites.
Musa sapientium.
Equisetum arvense.
Juncus effusus.
Rehmannia glutinosa.

Achyranthes aspera.
Ophiopogon japonicus.
Hemerocallis graminea.
Commelyna communis.
Malva verticillata.
Althæa rosea.
Solanum nigrum.
Physalis Alkekengi,
Jasminum nudiflorum.
Petasites japonicus.
Cassia Sophera.
Kochia scoparia.
Dianthus Seguieri.
Lychnis grandiflora.
Calendula officinalis.
Plantago major.
Various Indigo plants.
Polygonum orientale.
P. aviculare.
Tribulus terrestris.
Fragaria.
Bidens.

4. 毒草 *Tu ts'ao.* Poisonous plants. 54 species.

Rhubarb.
Phytolacca acinosa.
Euphorbia, various spec.
Ricinus communis.
Veratrum album.
Aconitum, various spec.
Arum.
Pinellia tuberifera.
Pardanthus chinensis.
Funkia alba.
Balsamine hortensis.
Datura alba.
Rhododendron.
Hyosciamus niger.
Ranunculus sceleratus.
Rhus.

5. 蔓草 *Wan ts'ao.* Climbing or creeping plants. 113 species.

Cuscuta.
Schizandra chinensis.
Rubus.
Duchesnia fragaroides.
Quisqualis indica.
Muricia cochinchinensis.
Aristolochia.
Pharbitis triloba.
Ipomœa.
Bignonia grandiflora.
Rosa indica.
Monthly Rose.
Trichosanthes palmata.
Thladiantha dubia.
Pueraria Thunbergiana.
Wisteria chinensis.
Asparagus lucidus.
Roxburghia.
Polygonum multiflorum.
Smilax China.
Rubia cordifolia.
Akebia quinata.
Metaplexis Stauntonii.
Humulus japonicus.
Ficus stipulata.
Lonicera chinensis.

6. 水草 *Shui ts'ao.* Water-plants. 29 species.

Alisma Plantago.
Acorus Calamus.
Typha.
Hydropyrum latifolium.
Lemna minor.
Marsilea quadrifolia.
Pistia stratioides.
Limnanthemum peltatum.
L. nymphoides.
Myriophyllum spicatum.

7. 石草 *Shi ts'ao.* Plants growing on rocks or in stony places. 27 species.

Dendrobium moniliforme.
Niphobolus Lingua.
Lycopodium, various spec.
Sedum alboroseum.
Sedum, various spec.
Saxifraga sarmentosa.
Oxalis corniculata.

8. 苔 *T'ai.* Various Mosses. Lichen, and the like. 18 species.

Selaginella involvens.

9. 雜草. Miscellaneous plants not used in medicine. 162 species.

II. 穀部 *Ku pu.* Grains.

1. 麻麥稻類 *Ma mai tao lei.* Hemp, Wheat, Rice, and the like. 9 species.

Sesamum indicum.
Cannabis sativa.
Wheat.
Barley.
Buckwheat.
Rice.

2. 稷粟類 *Tsi su lei.* Millet, and the like. 17 species.

Panicum miliaceum.
Sorghum.
Maize.
Panicum italicum.
Eleusine coracana.
Echinochloa crus galli.
Agriophyllum gobicum.
Coix lachryma.
Papaver rhoeas.
Opium.

3. 菽豆 *Shu tou.* Leguminous plants. 13 species.

Soja bean.
Phaseolus radiatus.
Pisum sativum.
Vicia faba.
Dolichos sinensis.
Lablab.

4. Articles of food prepared from grains and pulse. Bean-curd, boiled rice, wine, yeast, bread and congee.

III. 菜部 *Ts'ai pu.* Kitchen herbs.

1. 葷辛類 *Hun sin lei.* Strong smelling or pungent Vegetables. 38 species.

Allium odorum.
A. fistulosum.
Garlic.
Brassica chinensis.
Br. napus.
Sinapis.
Raphanus sativus.
Ginger.
Chrysanthemum coronarium.
Coriandrum sativum.
Daucus carota.
Fennel.
Star Anis.

2. 柔滑類 *Jou hua lei.* Soft and mucilaginous Vegetables. 46 species.

Spinacia oleracea.
Ipomoea reptans.
Beta vulgaris.
Capsella bursa pastoris.
Medicago sativa.
Amaranthus Blitum.
Portulacca oleracea.
Sonchus arvensis.
Lactuca sativa.
Taraxacum officinale.
Basella rubra.
Houttuynia cordata.
Edible Fern (Pteris aquilina).
Chenopodium album.
Colocasia esculenta.
Dioscurea sativa.
Batatas edulis.
Lilium tigrinum.
L. concolor.
Stachys affinis.
Bamboo-sprouts.

3. 蓏菜 *Lo ts'ai.* Vegetables producing fruits on or near the ground. 12 species.

Brinjals.
Bottle-gourd.
Benincasa cerifera.
Pumpkins.
Gourds.
Cucumber.
Luffa aegyptiaca.
Momordica charantia.

4. 水菜 *Shui ts'ai.* Aquatic Vegetables. Fuci, Algæ, etc. 6 species.

5. 芝栭 *Chi rh.* Mushrooms. 31 species.

IV. 果部 *Kuo pu.* Fruits.

1. 五果 *Wu kuo.* The five fruits.[19] Cultivated or garden fruits. 16 species.

Plum.
Apricot.
Peach.
Chestnut.
Zizyphus vulgaris.

2. 山果 *Shan kuo.* Mountain fruits. 36 species.

Pyrus sinensis.
P. baccata.
P. spectabilis.
Cydonia sinensis.
Cratægus pinnatifida.
Diospyros kaki.
D. lotus.
Punica granatum.
Various Oranges.
Pumelo.
Citrus digitata.
Citrus japonica.
Eriobotrya japonica.
Myrica sapida.
Prunus pseudocerasus.
Pr. tomentosa.
Salisburia adiantifolia.
Walnut.
Corylus.
Quercus chinensis.
Other species of Quercus.

3. 夷果 *I kuo.* Foreign fruits.[20] 40 species.

Nephelium litchi.
N. longan.
Canarium album.
C. pimela.
Phyllanthus emblica.
Averrhoa carambola.
Torreya nucifera.
Pinus koraĕnsis (Seeds).
Areca catechu.
Cocos nucifera.
Borassus flabelliformis (Palm-wine).
Persian Dates.
Caryota urens.
Artocarpus integrifolia.
Ficus carica.
Various other Figs.
Nephelium lappaceum.
Hovenia dulcis.

4. 味類 *Wei lei.* Aromatics. 17 species.

Zanthoxylum Bungei.
Z. piperitum and other spec.
Black Pepper.
Daphnidium cubebarum.
Rhus semialata.
Tea shrub.

5. 蓏類 *Lo lei.* Plants producing their fruits on (or near) the ground. 10 species.

Melons.
Water-melons.
Grapes.
Wild Vine.
Sugar-cane.

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[19] According to Li Shi chen the term *wu ku*, the five (principal, cultivated) fruits of China occurs first in the 素問 *Su wen*, the oldest medical treatise attributed to Emperor Huang ti.

[20] At first sight it would seem singular that Lichi's and Lungans, Canarium album and C. pimela and other species, growing exclusively in China and not found elsewhere, are classed among foreign fruits. But this arrangement dates evidently from an early time, when the southern provinces of modern China were first conquered (3rd century B. C.) and their productions became first known in the Empire. Compare above note 3a.

6. 水果 *Shui kuo.* Aquatic fruits. 6 species.

- Nelumbium speciosum.
- Euryale ferox.
- Trapa.
- Eleocharis tuberosa.

7. Various fruits not used in medicine. 22 species.

- Spondias.
- Cookia punctata.

V. 木部 *Mu pu.* Trees.

1. 香木 *Hiang mu.* Aromatic trees. 41 species.

- Thuja orientalis.
- Pinus sinensis.
- Cunninghamia sinensis.
- Cassia-bark, various spec
- Magnolia Yülan and other spec.
- Cloves.
- Sandalwood.
- Persea nanmu.
- Laurus camphora.
- Daphnidium myrrha.
- Liquidambar formosana.
- Olibanum.
- Myrrh.
- Dragon's-blood.
- Sticklac.
- Rose maloes.
- Benjamin.
- Borneo Camphor.
- Chinese Camphor.
- Asafœtida.
- Aloës.

2. 喬木 *K'iao mu.* Stately trees. 60 species.

- Magnolia hypoleuca ?
- Cedrela sinensis.
- Ailantus glandulosa.
- Rhus vernicifera.
- Catalpa Bungei.
- Elæococca verrucosa.
- Melia Azedarach.
- Sophora japonica.
- Acacia Julibrissin.
- Gleditschia sinensis.
- Gymnocladus chinensis.
- Sapindus Mukorossi.
- Kœlreuteria paniculata.
- Gallæ turcicæ.
- Terminalia Chebula.
- Salix babylonica.
- Tamarix chinensis.
- Populus alba.
- P. suaveolens.
- Ulmus pumila.
- Cæsalpinia sappan.
- Ebony.
- Betula.
- Rosewood.
- Chamærops Fortunei.
- Stillingia sebifera.
- Crotou tiglium.
- Gynocardia odorata.
- Abrus precatorius.

3. 灌木 *Kuan mu.* Trees with dense foliage. 53 species.

- Morus alba.
- Broussonetia papyrifera.
- Aegle sepiaria ?
- Gardenia florida.
- Zizyphus lotus.
- Rosa sinica.
- Prunus japonica.
- Ligustrum lucidum.
- Hedera scandens.
- Lycium chinense.
- Vitex incisa.
- Hibiscus syriacus.
- H. mutabilis.
- Camellia japonica.
- Chimonanthus fragrans.
- Gossypium.
- Eriodendron anfractuosum.
- Buxus.

4. 寓木 *Yü mu.* Parasitic plants on trees.

- Pachyma pinetorum.
- Mylitta lapidescens.
- Viscum or Loranthus.

5. 苞木 *Pao mu.* Bamboos.

6. Miscellaneous trees. 27 species.

The Pen ts'ao kang mu being properly a Materia medica, the greater part of its chapters, devoted apparently to natural history, is filled with medical discussions and prescriptions; the notices regarding the habits, form and locality of natural products, and their application for economic purposes, the only items which have any interest for us, are merely appendages to them.

Li Shi chen, in treating of the several kinds of natural objects, minerals, plants, animals, etc., follows in every case the same system. Each drug is headed by its most common name, written in large characters. The names of the authors and works quoted are for the most part in brackets. The matter relating to each article is divided into paragraphs. The first contains the name and the synonyms of the plant, indicating the works where these names first occur. The second, 釋名 (explanation of names), gives the etymology of the names. In the third, 集解, we find, besides the botanical description, statements regarding the history and the native locality of the plant, its use for economical or industrial purposes, and other particulars of interest. In some cases, under the heading 正誤, there are corrections of errors and instructions for preventing the improper use of the article as a medicine. In the fourth paragraph, 修治, the mode of preparing the officinal parts of the plant for medical use is detailed. In the fifth, 氣味, taste and smell, the qualities of the air and the nature of the drug are noticed.[21] It is also stated here whether the drug possesses poisonous properties or not. In the sixth paragraph, 主治, masterly operations, the specific virtues of the drug as a medicine are enumerated. In the seventh, 發明, is given a clear exposition of its uses. In the eighth, 附方, there is a list of recipes, with the names of the maladies for which the drug is used as a remedy.

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[21] According to the ancient Materia medica of Shen nung the 四氣 *sz' k'i* are the four conditions of temperature, according to which the drugs have the properties of

寒 *han*, cold 溫 *wen*, warmth

熱 *je*, heat 涼 *liang*, coolness.

But other ancient medical authorities understand by *sz' k'i* the four smells. K'ou tsung shi (12th century) observes that cold, heat, warmth and coolness are properly the 四性 *sz' sing*, or four natures. The four smells are the following:

香 *hiang*, fragrant 腥 *sing*, frouzy (?)

臭 *ch'ou*, fetid 臊 *tsao*, rank (?).

The following examples are adduced:

Gypsum is considered a drug of a cold nature; Cassia-bark is hot; Pinellia tuberifera is warm; Peppermint is cool.
Fragrant smell: Aloe-wood, Sandal-wood, Camphor, Musk.
Fetid smell: Garlic, Asafœtida.
Frouzy smell: Fowls, Fish, Ducks, Snakes.
Rank smell: Foxes, Human excrement.

It may be well to say here a few words on Chinese names of Plants. These names consist generally of one character, but frequently of two or three characters. 15 out of the 214 Radicals under which all the Chinese characters are grouped in Chinese dictionaries, denote plants or parts of them; and their combinations with other characters form the greatest part of the names of plants occurring in Chinese books. These botanical radicals are:

艸 or 艸 *ts'ao*, Herb (140). This has 1423 combinations. For instance: 艾 *ai*, Artemisia; 茗 *ming*, the book name of Tea; 茜 *ts'ien*, Rubia cordifolia.

木 *mu*, Wood (75).—1232 combinations. The names of most trees are to be found under this radical.—柞 *tso*, Oak; 榛 *chen*, Hazelnut.

The radical characters 禾 *ho*, Paddy, Corn (115), 米 *mi*, Rice, (119), 麥 *mai*, Wheat (199), and 黍 *shu*, Millet (202), and their combinations, form the names of most kinds of corn. For instance: 稻 *tao*, Rice; 粟 *su*, a kind of Millet; 麰 *mou*, Barley.

The radical 瓜 *kua* (97) and its compositions relate almost exclusively to Cucurbitaceous Plants, Cucumbers, Melons, Gourds; whilst the radical 豆 *tou* (151) is appropriated to Leguminous Plants.

The radical 麻 *ma* (202) denotes Hemp; the radical 竹 *chu* (118) Bamboo; the radical 韭 *kiu*, Leeks; the radical 支 *chi*, Branch; the radical 鬯 *ch'ang*, Fragrant Herbs.

As has been stated, each plant is usually denoted by a peculiar character; e. g. 柹 *shi*, Diospyros Kaki; 芡 *k'ien*, Euryale ferox;

The Shen nung Pen ts'ao king enumerates also the 五味 *wu wei*, or five tastes of drugs. viz.:

酸 *suan*. sour.
鹹 *hien*, salt.
甘 *kan*, sweet.
苦 *k'u*, bitter.
辛 *sin*, pungent.

茶 *ch'a*, Tea. The Jujube is denoted by the character 棗 *tsao*, which is formed by two characters 朿 *ts'z'*, meaning thorn. It is, as the Pen ts'ao kang mu explains, on account of the prickled appearance of the tree.

The plants, which enjoy a great renown for their utility, have even peculiar characters for their distinct parts. According to the ancient dictionary *Rh ya* (see above) the root of Nelumbium speciosum is called 藕 *ou*—the leaves and the stalks together 荷 *ho*—the stalk 茄 *kia*—the lower part of the stalk, being in the mud, 蔤 *mi*—the leaf 蕸 *hia*—the bud of the flower 萏 *t'an*—the seeds with the spongy testa 蓮 *lien*—the white seed without the testa 菂 *ti*—the cotyledons with the plumule within the seed 薏 *i*. As is known the common name of this plant is 蓮 花 *lien hua*.

The male plant of the common hemp, Cannabis sativa, 麻 *ma*, is designated by the character 枲 *si*; whilst the female (seed bearing) plant is 苴 *tsü*.

The characters which express the name often relate to the appearance of the plant, its properties, etc. Thus Physalis Alkekengi, the winter-cherry, is 紅 姑 娘 *hung ku niang*, red girl, on account of the red leafy bladder which encloses the ripe fruit. —Celosia cristata, Cockscomb, bears a name of the same meaning in China, 雞 冠 *ki kuan*.—Arachis hypogæa, the ground-nut, is called 落 花 生 *lo hua sheng* (the flowers fall down and grow), as its Greek specific name also denotes; the fruit growing (seemingly) in the ground. After the fall of the flower the fruit curves downwards and the pod ripens in the ground.—The Chimonanthus fragrans is termed 臘 梅 *la mei*, prunus of the 12th month, for in China its flowers appear in winter.—On account of the early appearance of its flowers in spring, Jasminum nudiflorum is called 迎 春 花 *ying ch'un hua* (flowers which go to meet the spring).—Lilium tigrinum bears the Chinese name 百 合 *po ho* (hundred together), owing to the numerous scales which form the bulb. This bulb is largely used for food in China.—The common name of Euryale ferox is 雞 頭 *ki t'ou* (fowl's head). Anybody who has seen the fruit of this plant will agree that the Chinese name is very significative.—The name of 絨 花 樹 *jung hua shu* (silk-flower tree) is applied to Albizzia Julibrissin. The latter specific name is a corruption of the Persian *gul i abreshum*, meaning also silk-flower. This name is given on account of the silky appearance of the long stamens.

There are in China a considerable number of cultivated plants which have been introduced from foreign countries, especially from India, Central and Western Asia. The Chinese have often tried to render the foreign names of these plants by Chinese sounds. The Pen ts'ao kang mu frequently quotes Sanscrit names (梵 *fan*). Thus the 娑羅 *so lo* is the Shorea robusta, *sal* or *sála* in Sanscrit. Buddha is said to have died under a Sal tree, for which reason the tree is also styled 天師栗 *t'ien shi li* (Chestnut of the heavenly preceptor). But as there are no Sal trees in China the Buddhist priests in the temples usually cultivate Aesculus chinensis under the above names.—The Sanscrit name of Sandalwood, *chandane*, is rendered in the Pen ts'ao kang mu by the sounds 旃檀 *chan tan*.—The Jack-fruit, Artocarpus integrifolia, is termed 波羅蜜 *po lo mi* in Chinese. This is evidently a transcription of the Sanscrit *paramita*, excellent.—The Pen ts'ao kang mu speaks of a Western Asiatic plant 撒法郎 *sa fa lang*, and the particulars given about this plant leave no doubt that Saffron is meant.

The plant 胡盧巴 *hu lu pa*, cultivated in China and said to be of foreign origin, is apparently Trigonella fœnum græcum, *hulba* in Arabic.[22]

The descriptive details of plants as found in the Pen ts'ao kang mu and other treatises of this class are generally meagre and unsatisfactory. The time of flowering and the colour of the flowers are always noted; but the other particulars are insufficient, because the Chinese, in speaking of the parts and organs of plants, have no botanical terminology, the leaves, flowers, fruits, etc. being described by comparison with the same organs of other Chinese plants, frequently unknown to European readers. This was however also the mode of describing plants adopted by the celebrated Dioscorides (first century of our era), and followed by our botanists down to the time of Linnaeus. Comp. *e. g.* Plukenet's Amaltheum botan. 1705.

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[22] At least in Japan the above Chinese name is applied to a variety of *Tr. fœnum græcum*. Franch. Sav. Enum. pl. japon. I. 95.—So mo kou XIV. 18, 19.

The descriptions of plants given by Li Shi chen consist for the most part of successive quotations from authors of various times, and in this regard again present an analogy to the treatises on Materia medica of early Western authors. See for instance Ebn Baithar's (13th century) great work on Medicines and Aliments (German translation by Sontheimer, 1840). Finally Li Shi chen gives also his own opinion on the subject treated of; and it may be said that his view is generally the most reasonable of all.

The Chinese possess very little talent for observation, or zeal for truth, the principal requirements of the naturalist. The Chinese style is inaccurate and often ambiguous. In addition to this they have an inclination to the marvellous, and their opinions and conclusions are frequently puerile. But notwithstanding these deficiencies, met also in all the other branches of Chinese literature, their works on botany, if critically studied and rightly understood and appreciated, will be found to be replete with interest, and to present much valuable information, especially in elucidating the history of cultivated species. These treatises have no less claim to be translated into European languages and to be commented upon than the works of Theophrastus, Dioscorides, and Plinius.

Let me now consider the difficulties which the student of the Pen ts'ao kang mu must overcome in order to understand clearly the information furnished in this and other Chinese botanical works.

The first difficulty that arises is to find out where to look for the plant about which information is required. Chinese botanical works note from 5000 to 6000 names of plants, the synonyms of each plant being for the most part numerous. The Chinese have nothing similar to the alphabetical indexes of our comprehensive works. I have therefore been obliged to draw up for the convenience of my own studies alphabetical indexes of all Chinese names of plants and synonyms, according to the sounds of the Chinese characters, not only for the Pen ts'ao kang mu, but also for the other more important Chinese treatises on Botany.

It cannot be said that the style of Chinese writers on botanical matters presents difficulties to European readers acquainted in some degree with the language. In describing plants the authors use for the most part always the same terms. The chief obstacles encountered by European inquirers studying these writings will be found to consist in the right interpretation of geographical names which occur, and in ascertaining the time when the quoted works were composed. The satisfactory elucidation of these important questions requires extensive preliminary studies in Chinese Geography, especially Historical Geography, and Bibliography. I need hardly say that for investigations of this kind very little assistance can be expected from our Chinese teachers, whose erudition seldom extends beyond the classics.

Li Shi chen compiled the Pen ts'ao kang mu from about 1000 ancient and more recent works, not only medical and botanical, but also historical, geographical, philosophical, poetical, etc. As I have stated above the author gives a dry list of these works without other explanation; and in mentioning works or authors he never gives the whole title, but frequently only one character of the author's name is quoted. In consulting the Pen ts'ao we meet frequently in brackets with the characters 頌 曰 *Sung yüe* (Sung says). The character sung means properly a eulogy, but here it denotes the author 蘇 頌 *Su Sung*, who wrote the *T'u king pen ts'ao* (see above No. 24). More examples of this kind, quoted from the Pen ts'ao, will be found in another chapter of this paper, where I shall give an alphabetical list of works and authors appearing in that treatise.

On a previous page we have already drawn attention to the importance for our investigations of knowing the time when the quoted works were written. We may add here that this question must be also elucidated for the purpose of determining the localities mentioned in Chinese botanical writings. At all times the Chinese have endeavoured to complicate all branches of their knowledge, so that they themselves do not find their way easily. They seem to place the value of their sciences in this intricacy. It is known that from ancient times each of the Chinese Emperors bore, besides his dynastic name, a name for his reign, and this latter was often changed. There are Emperors who are registered in history with from 10 to 15 names, each composed of at least two characters. The Chinese authors, in citing dates, refer to these reign-names of the Emperors, which correspond to our ciphers, to designate the dates. In the same manner the Chinese have at all times liked to change the names of their provinces, cities, etc. Almost every dynasty, on succeeding to the throne, has changed the names of most of the cities and also of the provinces of China. Thus every city has borne different names at different periods. But as the number of characters to designate geographical names is limited, and as certain characters are particularly in favour for names of departments or districts, it happens very often that one geographical name is applied to a great number of places. For instance 西 平 *Si ping* is now-a-days the name of a district in the province of Honan. At the time of the Han it was the name of a district in the present Anhui; at the time of the Tsin a district in Kansu. During different periods of Chinese history the same name was applied to districts in Yün nan, Sz' ch‘uan, and Hu pei.—永 昌 *Yung ch‘ang*, now-a-days a prefecture in Yün nan, has borne this name since the 5th century. During the Mongol period the same name was given to a prefecture in the province of Kansu. There are several other cities in China which at different times have borne the name of Yung ch‘ang. —The name of a province 江 南 *Kiang nan* (the two characters meaning south of the river) occurs frequently in the pages of the Pen ts‘ao. Here it does not mean the country south of the Yellow River, so called under the present dynasty (provinces of Anhui and Kiang su), but it is to be understood as the Kiang nan province of the T‘ang dynasty, south of the Yang tsz' kiang, comprising the greatest part of the modern provinces of Fukien and Kiang si.—In like manner the province of 河 南 *Ho nan* of the T‘ang period does not correspond to the province of this name to-day, for it occupied the greater part of the modern Shan tung. Ho nan likewise means south of the river, but here the Yellow River is intended, which then emptied itself into the Gulf of Pechili, as it has done for some thirty years past.—The name 南 海 *Nan hai* (Southern Sea) referred in ancient times to the Eastern part of the modern Kuang tung province, but sometimes the Chinese also understand by this name the Archipelago and the Indian Ocean.

It is clear that the greatest geographical errors can be committed by the reader unacquainted with the time at which the respective Chinese author, referring to names of countries and places, wrote. In the year 1843 E. Biot published a useful book, *Dictionnaire des noms anciens et modernes des Villes etc. dans l'Empire Chinois.* It is translated from the 廣輿記 *Kuang yü ki*, a small geographical account of the Empire, and arranged in alphabetical order; but it proves to be insufficient for determining the geographical names, occurring in the Pen ts'ao. As far as only the names of Chinese cities at different times are concerned I would recommend for reference a very complete Chinese Geographical Dictionary, the 歷代地理志韻編今釋 *Li tai ti li chi yün pien kin shi*, in 20 books, published in 1837. The names of Chinese cities, ancient and modern, are arranged in it according to a Chinese system under about 1600 characters. It is not quite easy to find a name in this book, but by arranging these 1600 characters according to the radicals (as I have done for my own use) it can be made more practicable for consultation. But in this work we find only ancient and modern names of Chinese departments and districts, whilst ancient Chinese writers on botany in giving the stations of plants frequently mention provinces, the names of which have also been repeatedly changed in course of time. This want is in some degree met by the new edition of the Li tai ti li chi, etc., published in 1872, by 李鴻章 *Li Hung chang*, the well-known Viceroy of Chihli. In this edition a series of historical maps referring to the political divisions of China under the different dynasties has been added. More detailed information on the subject may be found in an elaborate compilation of historical maps of China, which came to light in 1879 (Tung hu hien, Hu pei) with the title 歷代輿地沿革險要[illegible] *Li tai yü ti yen ko hien yao t'u.* It comprises 68 maps drawn up according to the geographical sections in the Dynastic Histories.

In the Pen ts'ao occur also frequently names of ancient countries not included in China. These must be sought for in the Histories of the various Chinese Dynasties, which generally contain at the end notices of foreign countries.

THE 廣羣芳譜 KUANG K'ÜN FANG PU.

This work, the Chinese title of which may be translated: Enlarged Thesaurus of Botany, is a very valuable treatise on Botany, dealing with cultivated as well as with wild plants. The original work was published in 1630 under the title of 羣芳譜 *K'ün fang pu*, Thesaurus of Botany, in 30 books, by 王象晉 *Wang Siang tsin*. In 1708 a revised and enlarged edition was completed and printed by Imperial order with the above title *Kuang K'ün fang pu*, in 100 books. This is divided into 11 sections (部 *pu*) under the following heads:

1. 天時 *T'ien shi.* The Heavens, the Seasons of the year.
2. 穀 *Ku.* Grains, Beans.
3. 桑麻 *Sang ma* (literally: Mulberry-tree and Hemp). Textile Plants.
4. 蔬 *Shu.* Vegetables.
5. 茶 *Ch'a.* Tea.
6. 花 *Hua.* Flowers.
7. 果 *Kuo.* Fruits.
8. 木 *Mu.* Trees.
9. 竹 *Chu.* Bamboos.
10. 卉 *Hui.* Herbs.
11. 藥 *Yao.* Medicinal Herbs.

The number of species described in the Kuang K'ün fang pu amounts to about 1700. It contains much new information not found in the Pen ts'ao, drawn from ancient and later authors. There are no illustrations in it, but its great superiority lies in the splendid type. The matter is treated in much the same way as in other Chinese works of this kind. The author gives first some short original account of each plant, which is followed by a series of quotations from authors and works of various times on the subject. These quotations are arranged under three heads, printed in white characters on black ground, and numerous subdivisions, in brackets, as also the names of works and authors quoted.

1. 彙考 *Hui k'ao.* Under this head are comprised quotations from the Classics, Histories of the Dynasties, Biographies, the

works of the Chinese philosophers, Geographical works, Descriptions of the Chinese provinces, departments, etc. The time of these publications is never given, nor are the quotations arranged chronologically.

2. 集 藻 *Tsi tsao*. Fine composition, elegant writing. Under this head, which comprises the greater part of the extracts given, we meet with quotations from a great number of poetical compositions. The matter is arranged in chronological order, and the dynasties during which the quoted authors wrote are always indicated. For the headings of the numerous subdivisions under which the quotations appear see Mr. Wylie's Notes on Chinese Literature, p. 188—192, where the various forms of Chinese poetry are detailed.

3. 別 錄 *Pie lu.*[23] This comprises principally quotations from authors on agriculture and on the economic use of plants.

The characters 原 and 增, likewise printed white on black ground, indicate, the first the original matter of the K'ün fang pu, the second the additional information given in the Kuang K'ün fang pu.

THE BOTANICAL SECTION OF THE 圖 書 集 成 T'U SHU TSI CH'ENG.

Eighteen years after the publication of the Kuang K'ün fang pu, in 1726, the vast Compendium of Chinese Literature known under the above name,[24] was drawn up under Imperial authority.

The Botanical Section of this gigantic compilation, 草 木 典 *Ts'ao mu tien*, comprises 320 books. As it exists in the library of the Russian Legation at Peking, I have had ample opportunity of referring to it. It has a good claim to be regarded as the most complete collection of Chinese records on botanical matters extant, and its having been printed with large moveable copper types on excellent paper renders it especially useful for reference. A great number of rare or now lost ancient botanical records and treatises on agriculture have been reproduced in it; and the whole matter of the Pen ts'ao kang mu, cleared from mistakes, is also found there. The pictorial illustrations accompanying the accounts of the various plants seem to have been drawn from all available sources in previous Chinese pictorial works on botany. They are much better than those in the Pen ts'ao, but with a few exceptions they have no great value. Some of them can be traced to the Kiu huang pen ts'ao (see above No. 35).

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[23] This term is not to be confounded with the *Pie lu* frequently quoted in the Pen ts'ao. As we have seen above (No. 7) this is the abbreviated title of an ancient Materia medica.

[24] Readers who are desirous of further information about this magnificent work may find it in W. F. Mayers' paper: Bibliography of the Chinese Imperial Collections of Literature, the last publication from the able pen of this distinguished and lamented scholar. It appeared in Vol. VI of the China Review, 1878. On p. 218 the author gives a review of the T'u shu tsi ch'eng, or as its full title reads 古 今 圖 書 集 成 *Ku kin T'u shu tsi ch'eng*, i. e. Compendium of Literature and Illustrations, Ancient and Modern. A complete copy of the work was acquired in 1878 by the British Museum. The Great Library at Paris is said to possess some portions of it.

The matter under each plant is invariably arranged in the following order—not very intelligible to European minds.

1. Under the head of 彙考 *Hui k'ao* the respective text of the principal works on Materia medica, Botany, Agriculture, Horticulture, etc. are reproduced, and generally *in extenso,* for each plant.
2. The head of 藝文 *I wen* deals with literary compositions, poetical works, etc. in which plants are mentioned.
3. 選句 *Süan kü.* Elegant extracts.
4. 紀事 *Ki shi.* Minor historical notices.
5. 雜錄 *Tsa lu.* Miscellaneous notes.
6. 外編 *Wai pien.* Appendices.

Plants in the T'u shu tsi ch'eng are treated in 700 部 *pu* (divisions). It is to be regretted that the time of publication of the quoted works is only given in the case of the literary compositions and poems, although the reason for this omission is not apparent. As regards the quotations under the other heads neither the time is noticed, nor are they chronologically arranged according to date of publication.

THE 植物名實圖考 CHI WU MING SHI T'U K'AO.

This, the most recent work of note on Chinese Botany, and especially remarkable for its drawings, was published in 1848.

It has much attracted the attention of European botanists and sinologues in China, and is now to be found, I think, in all the great libraries of Europe.[25]

吳其濬 *Wu K'i sün*, the author of this elaborate botanical work, was a scholar and functionary of high distinction during the present dynasty.[26] He was a native of 固始 *Ku shi hien*, in Southern Honan. His literary name was 瀹齋 *Yu chai*, but in his work he generally styles himself 雩婁農 *Yü lou nung*, the husbandman of Yü lou.[27] He entered public life in 1817. After taking his degree as first-class graduate he commenced his career as Han lin compiler. In 1819 he was appointed Chief Examiner in Kuang tung. In 1831 he entered the Imperial College of Inscriptions; in 1832 he was sent to the province of Hu pei as Provincial Director of Education; and in 1834 he returned to Peking where he successively held several high offices (Director of the State Ceremonial, Sub-Chancellor of the Grand Secretariat, Vice-President of the Board of Rites). In 1837 he was appointed Provincial Director of Education in Kiang si, and in 1838 Provincial Examiner in Che kiang. Subsequently we find him again in the capital as Senior Vice-President of the Board of War, and a year later he held the same office in the Board of Revenue. In 1840 he had risen to be Acting Governor General of Hu kuang, and in the same year he was made Governor of Hunan. In 1842 he fought successfully against the rebels in his province, and soon after this fell ill. In 1843 he was transferred as Governor to Che kiang, and in the same year appointed Governor of Yün nan. He subsequently administered the provinces of Yün nan and Kwei chou as Acting Governor General, but in 1845 he was again removed and transferred to Fu kien as Governor. Soon after he held the same office in Shansi. In 1846 he was again attacked by illness and allowed to retire from his public duties. He died a short time afterwards. The Emperor gave him a posthumous title.

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[25] I have myself procured at different times in Peking several copies of it, which were sent to London, Paris, Berlin, the United States of America, etc. Fifteen years ago its price in Peking was $18, but now it can hardly be obtained here for less than $30, although it is not a very rare book.

[26] The biographical details here presented are drawn from a memorandum compiled from official sources and communicated to one of my friends in Peking by an officer of the Tsung li ya men.

[27] *Yü lou* is an ancient name of a district in the province of An hui (Lu kiang hien).

It appears from this dry *curriculum vitae* that *Wu K'i sün* displayed great activity in his public life. The opportunity he had of making himself acquainted with many provinces of the Empire qualified him to investigate the Chinese Flora. It is however not easily understood how he found leisure to prosecute his favourite studies and to write an extensive work on Botany, illustrated with a large number of drawings.

The Chi wu ming shi t'u k'ao is generally in 8 tomes (t'ao). One-half of them, 4 t'ao or 22 (rather voluminous) books, comprise the descriptive portion of the work, and are styled 長編 *Chang pien* by the author. They contain accounts of plants compiled as usual from previous authors, but Wu K'i sün introduces also a good deal of new and interesting matter not found in the Kuang K'ün fang p'u or the T'u shu tsi ch'eng.

The second part, in 38 books, forming also 4 t'ao, is devoted to pictorial illustrations of plants accompanied with short, sometimes also detailed descriptions. These drawings, nearly 1800 in number, are tolerably well executed, especially those delineated by the author himself, apparently from nature. One part of the engravings can be traced to the Kiu huang pen ts'ao (see above No. 35). Although the wood-cuts in the Chi wu ming shi t'u k'ao cannot be compared, as far as scientific accuracy in delineation is concerned, with those of some Japanese botanical works (of which I shall speak further on), it is undoubtedly the best Chinese pictorial work of this class, and entitled to special attention on the part of students of Chinese Botany.

The Chi wu ming etc. was revised and published, it seems soon after the death of the author, by 陸應穀 *Lu Ying ku*, a native of the province of Yün nan, who wrote also the preface, which is dated T'ai yüan fu (Shansi) 1848. He states that *Wu K'i sün*, having held public offices in different parts of the Empire, had many opportunities of making observations with respect to plants, and of comparing his own experiences with the statements of previous authors. He had at an earlier period composed the first part of the work, the *Chang pien*, but subsequently was induced to draw up the second or supplementary part, accompanied with drawings, in which the author endeavoured to give the results of his personal observations.

Among the works and authors frequently quoted by Wu K'i sün I may notice the *Kiu huang pen ts'ao* (see above),—the 花鏡 *Hua king*, published 1688,—the 南越筆記 *Nan yüe pi ki*, an account of the Southern provinces of China, written during the present dynasty,—the 滇南本草 *Tien nan pen ts'ao*, a Herbal of the province of Yün nan (unknown to me).

With this my sketch of the History of Chinese Materia medica and Botany may be brought to a close. I have reviewed only the more important works of this class. Chinese writings on plants are very numerous, both general treatises and monographs on particular plants. These will be shortly noticed in another chapter devoted to Bibliography.

2. CHINESE WORKS ON AGRICULTURE.

The primeval Emperor *Shen nung*, whom the Chinese believe to have composed the first treatise on Materia medica, is also credited with having laid the foundation of Chinese Husbandry. His name implies this tradition, for Shen nung means: the Divine Husbandman. It is related in the early records that the people of his age were rude and wholly unacquainted with the advantages of agriculture. They subsisted on fruit, vegetables, and the flesh of birds and beasts. Shen nung examined first the quality of the soil, fashioned timber into ploughs and taught the people how to till the ground and raise grain. On a previous page I referred to the mountain in Shan si, where tradition makes him first teach his people the fundamental processes of agriculture. Sz' ma Ts'ien (B. C. 163—85) records in the Shi ki (book 1) that Shen nung sowed the five kinds (種五穀).—鄭玄 *Cheng küan*, a celebrated scholar of the Han dynasty, A. D. 127—200, explains that the five kinds of cereals, the 五穀 *wu ku*, are meant, namely: 稻 *tao* (Rice), 麥 *mai* (Wheat), 粱 *liang* (Panicum italicum). 黍

shu (Panicum miliaceum), and 菽 *shu* (Soja bean). The same are also mentioned in the Classics.

It is known that at the time of the vernal equinox the ceremony of ploughing the soil and sowing the five kinds of corn is performed by the Emperor, assisted by the Imperial Princes and the Presidents of the Boards. According to the 大清會典事例 *Ta Ts'ing hui tien shi li*, the great work on the institutes of the government, book 250. 1, where this ceremonial is described, the same cereals are mentioned in connection with it. The Emperor sows the rice, the Princes and the Presidents of the Boards sow the remaining cereals.

Shen nung's son 柱 *Chu* held the office of 稷正, Minister of Husbandry. More than 400 years later 棄 *K'i*, a son of the Emperor *K'u*, filled a similar office. The Emperor *Yao*, B. C. 2356, made him 農師, Director of Husbandry. He is more generally known under the name of 后稷 *Hou tsi*, Sovereign Millet. The house of the Princes of Chou traced their lineage to him. After his decease he became worshipped like *Chu* as patron of Agriculture (Mayers' Chin. Read. Man. p. 223).

An interesting sketch of the state of ancient Chinese agriculture during the Chou dynasty has been drawn up by E. Biot from the scattered references to the subject found in the Book of Odes. An English translation of this article is found in Dr. Legge's *Shi king*, proleg. p. 149.

As in China agriculture has always been held in the highest estimation, Chinese literature relating to husbandry is represented by a great number of general treatises and monographs on the subject, composed at various times.

THE 種植書 CHUNG CHI SHU.

This seems to be one of the earliest treatises of this class. The author of it was 氾勝之 *Fan Sheng chi*. In the biographical section of the Ts'ien Han shu, book 30 (husbandry), will be found a short notice regarding the author. Liu Hiang, the librarian of the Imperial library (first century B. C.) reports that Fan Sheng chi held successively several offices during the reign of Ch'eng Ti, B. C. 32—6, and that the Emperor appointed him to teach husbandry in the pretectures surrounding the capital (Ch‘ang an near the present Si an fu in Shensi).

The work was in 18 sections (pien). Some quotations from it, found in other ancient works, are all that has come down to us of this ancient treatise, the title of which means "the Book on the Art of Sowing and Planting." Extracts from it are given in the Ts‘i min yao shu (see the next), but they only refer to the following cultivated plants:

Common Rice.
Wheat.
Barley.
Panicum miliaceum.
Echinochloa crus galli. Two varieties, still cultivated in North-China, are mentioned, one of them cultivated in water, the other in dry soil.

Soja bean.
Other leguminous plants.
Lagenaria.
Common Hemp.
Caladium esculentum.
Mulberry-tree.

THE 齊民要術 TS‘I MIN YAO SHU.

This title may be translated: Important Rules for the people to gain their living in peace. It is a work on husbandry, still extant, by 賈思勰 *Kia Sz' niu* (thus the Pen ts‘ao, list of works 26, gives the pronunciation of the last character, generally pronounced *hie*). We learn from the Sz' k‘u ts‘üan shu, C. II. 2, that he was a subject of the After Wei (A. D. 386—534) and prefect of 高平 *Kao p‘ing*. (Several cities of this name existed during the Wei in different parts of the Empire.) He seems to have lived in the 5th century. The original work was in 92 *pien* (sections). A part of it was lost a long time ago, and much additional matter by later authors is found in the edition now current, which is in 10 books. It seems that the T‘u shu tsi ch‘eng reproduces in books V and XV (on planting and felling trees, and cultivating fruits), and under the heads of the respective plants the whole matter of the work, together with the additional notes; but the latter are always separated there from the original text. According to an author of the 12th century, quoted in the Wen hien t‘ung k‘ao, the edition then extant was already provided with the interpolated notes; and according to 李燾 *Li Tao* (also an author of the Sung) these notes had been added by 孫公 *Sun Kung* (Sung dynasty).

The work of Kia Sz' niu contains many interesting particulars regarding the cultivation of the cereals, vegetables, fruits, trees, etc. then grown in China. It is also of interest on account of its numerous quotations from previous ancient writings now lost.

The following plants treated of in the Ts'i min yao shu can be identified:

Common Rice.
Mountain Rice.
Panicum miliaceum. (Two varieties still cultivated in China.)
Setaria italica.
Sorghum vulgare.
Barley.
Wheat.
Avena nuda.
Buckwheat.
Soja hispida.
Abrus precatorius ?
Raphanus sativus.
Brassica Napus.
Br. chinensis.
Br. chin. oleifera.
Various species of Sinapis still cultivated in China.
Lactuca sativa.
Thlaspi arvense ?
Benincasa cerifera.
Various Pumpkins and Gourds still cultivated in China.
Bottle-gourd.
Cucumis sativa.
Solanum Melongena.
Batatas edulis.
Caladium esculentum.
Hydropyrum latifolium.
Allium sativum.
A. fistulosum.
A. odorum.
Other species of Allium.
Malva verticillata.
Rehmannia glutinosa.
Medicago sativa.
Polygonum orientale.
Pteris aquilina.
Various Mushrooms.
Nelumbium speciosum.
Limnanthemum nymphoides.
L. peltatum.
Typha (sprouts eaten).
Sea-weed.
Bignonia grandiflora.
Akebia quinata.
Rhododendron.
Poterium officinale.
Celery.
Coriandrum sativum.
Perilla ocimoïdes.

Zingiber officinale.
Z. Mioga ?
Amomum Cardamomum.
Bitter-seeded Cardamom.
Other species.
Betel-pepper.
Zanthoxylum, various species.
Sesame.
Cannabis sativa.
Sida tiliæfolia.
Plants yielding Indigo.
Carthamus tinctorius.
Lithospermum erythrorhizon.
Gardenia florida.
Varnish-tree (Rhus).
Stillingia sebifera.
Peach.
Apricot.
Prunus domestica.
Pr. pseudocerasus.
Pear.
Crab-apple.
Pyrus betulæfolia.
Diospyros Kaki.
Nephelium Litchi.
N. Longan.
Myrica sapida.
Eryobotrya japonica.
Pomegranate.
Oranges.
Cydonia sinensis.
Hovenia dulcis.
Vitis vinifera.
Wild Vine with edible fruits.
Zizyphus vulgaris.
Chestnut.
Hazelnut.
Banana.
Sugar-cane.
Phyllanthus emblica.
Canarium Pimela.
C. album.
Cocoa-nut.
Areca Catechu.
Morus alba.
Broussonetia papyrifera.
Salix babylonica.
Populus alba.
Ulmus pumila.
Catalpa Bungei.
Sophora japonica.

Quercus chinensis.
Other species.
Sterculia platanifolia.
Melia Azedarach.
Ficus retusa.
Thuja orientalis.
Palm-tree yielding Sago (Caryota).
Bamboo.
Rattans.

THE 種樹書 CHUNG SHU SHU.

This is another work on husbandry, published some centuries later, which has survived in the form of quotations preserved in later works of that class. The name of its author is 郭槖駝 *Kuo T'o t'o*, who seems to have lived in the 7th or 8th century. All that we know of him is found in a short biographical notice written by the poet *Liu Tsung yüan* (A. D. 773—819. See alph. list 478), who perhaps was his contemporary. This biography is reproduced in the T'u shu tsi ch'eng, book VI. Kuo T'o t'o was a villager experienced in husbandry. His village was situated in the vicinity of Ch'ang an, the metropolis of China during the T'ang period. His true cognomen is unknown, *T'o t'o* (Camel) being his pseudonym.

The T'u shu tsi ch'eng seems to reproduce the whole matter of the Chung shu shu. See books V, X, XV, and under the heads of the respective plants. It would be presumed from the title of the work, which means: the Book on the Art of Planting Trees, that it deals only with trees; but in reality it treats also of cereals, vegetables, and fruits; and gives notices of nearly the same plants as the Ts'i min yao shu. The following are new:

Phaseolus radiatus.
Melons.
Spinach.
Beta vulgaris.
Papaver Rhœas.
Pæonia Moutan.
P. albiflora.
Jasminum Sambac.
J. officinale.
Olea fragrans.
Mandarin-Orange.
Coolie-Orange.
Other Oranges.
Pyrus malus.
Salisburia adiantifolia.
Pinus sinensis.
Lycium chinense.

The Chung shu shu presents a peculiar interest with respect to some curious accounts found in it regarding the art of grafting trees. It has been asserted that the Jesuit missionaries first taught the Chinese to graft trees (see Chambers' Encycl., article: Grafting). But that is a mistake. Grafting was probably practised in China in early times. The ancient Dictionary *Shuo wen*, published A. D. 121, explains the character 椄, even now-a-days the proper term for grafting (sometimes also written 接), by 積木, which can only be translated by grafting. But in Chinese works on husbandry now extant Kuo T'o t'o is the earliest author quoted with respect to grafting.

The ancient Greek and Roman authors assert that the vine, the fig-tree, the walnut-tree, the olive-tree, the pomegranate and other heterogeneous trees can be grafted together (see Pliny's Natur. hist.). Although in our days no credit is given to these statements, as all attempts of grafting have failed except among plants of the same genus, or at least of the same natural family, —it is a curious fact that in ancient Chinese writings on agriculture we meet with statements similar to those made by Pliny. Kuo T'o t'o asserts, besides the successful grafting of Broussonetia papyrifera on Morus alba (which is not improbable at all), that Plum-trees yielding sour fruits and Pear-trees can be grafted on the Mulberry-tree, and that by this way a sweet plum and a sweet delicate pear are obtained. He states further that Prunus domestica can be grafted on the Peach-tree and *vice versa*—or the Apricot-tree on the Peach-tree, which causes the apricots to increase in size. A Peach-tree grafted on Diospyros Kaki is said to produce gold-coloured peaches. Finally we are told in that ancient book that the Pomegranate can be successfully grafted on Olea fragrans, and Prunus on Melia Azedarach. I find also there a statement to the effect that if a Vine be planted so close to a Jujube-tree that the roots of both plants come into contact, the grapes will assume the flavour of the jujube. It is remarkable that a sympathy was supposed to exist between the Vine and the Zizyphus Lotus by the gardeners of ancient Babylon. Compare Meyer's Geschichte der Botanik, III, 74, Husbandry of the Nabathæans. See also the observations of the Jesuit missionaries in China on the same subject, *i. e.* on the grafting together of heterogeneous trees by Chinese gardeners (My "Early Europ. Res. into the Flora of China," p. 29, 125 [21, 21]).

The 四時纂要 *Sz' shi tsuan yao.* Important Rules for the Four Seasons, in 5 books, is also a production of the T'ang period and frequently quoted in Chinese works on husbandry. The

Wen hien t'ung k'ao, CCXVIII, 3, gives a short bibliographical notice with respect to this work. It is stated there that 韓諤 *Han O*, the author, in compiling these Rules for Husbandry, made use of all preceding writings on the subject.

The 農書 *Nung shu* is a treatise on husbandry in 3 books, written by 陳旉 *Ch'en Fu*, in 1149 A.D. The first part treats of Agriculture, the second of Breeding Cattle, the third of Rearing Silkworms. See Wylie's Notes on Chin. Lit. p. 75. According to the Wen hien t'ung k'ao, CCXVIII, 6, the author was a hermit living in the Western mountains, about the middle of the 12th century.

Another work with the same title 農書 *Nung shu,*[28] in 22 books, by 王禎 *Wang Cheng,* was published during the Yüan period (13th or 14th century). This treats with great minuteness of the details of husbandry, and is illustrated by plates, each accompanied by a stanza of poetry. The first six books, 農桑通訣 *Nung sang t'ung küe,* consist of general rules for agriculture. This section is frequently quoted in the Kuang k'ün fang pu and in later works on husbandry, as a separate work. It is followed by the 穀譜 *Ku pu,* on Cereals, 4 books, and then by a series of plates illustrating agricultural implements. See Wylie l. c. p. 76.

Wan Cheng also wrote two monographs on Textile plants, both illustrated by plates, viz.:

The 木棉圖譜 *Mu mien t'u pu,* a treatise on the Cotton plant, and

The 麻苧圖譜 *Ma Ch'u t'u pu,* on Hemp and Grass-cloth plants. This is found reproduced in the Chi wu ming shi t'u k'ao, descr. part IX, 53.

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[28] A third work with the same title appeared in the beginning of the present dynasty. It was compiled by 張履祥 *Chang Li siang.* It is reprinted in the collection Chao tai ts'ung shu (Wylie l. c. 187).

The 農桑輯要 *Nung sang tsi yao*, another work on the Agriculture of the Yüan period, in seven books, was drawn up by order of Kublai Khan, in 1273. It was then considered a treatise of great importance, and has been several times republished. There are ten divisions on the following subjects: Precepts, Ploughing, Sowing, Planting Mulberry-trees, Rearing Silkworms, Vegetables, Fruits, Bamboo and Forest-trees, Medicinal plants, and Breeding Cattle. (See Wylie l. c. 76.) The preface of the work is by 王磐 *Wang P'an.*

The 農桑衣食撮要 *Nung sang i shi tso yao* is a small treatise, in two books, on the same subjects as the preceding, and intended to supplement the information contained in it. It was written in 1314 by 魯明善 *Lu ming shan*, an Ouigur by birth, and reprinted in 1330 (Wylie l. c. 76).

THE 農政全書 NUNG CHENG TS'ÜAN SHU.

This work, the title of which may be translated by "Complete Treatise on Agriculture," is one of the most important and interesting works on Chinese husbandry extant. It was written by 徐光啓 *Sü Kuang k'i*—literary name: 元扈 *Yüan hu*; posthumous title: 文定公 *Wen ting kung*,—A. D. 1562—1633, a native of 上海 *Shang hai.* See his biography Ming shi 251, and Mayers' Chin. Read. Man. p. 197. Sü Kuang k'i was a distinguished scholar and Minister of State during the reign of Ming Wan li. His interest in scientific inquiry brought him in contact with the Jesuit missionaries at Peking, whom he warmly supported. Mention is repeatedly made of Sü Kuang k'i in Du Halde's Description de la Chine (III. 76, 79, 82), where he is styled *Paul Siu*, Colao,[29] Premier Ministre d'État. His portrait is also given there. He was a friend of Matteo Ricci and was baptized at Nanking. Paul was his Christian name.

The Nung cheng ts'üan shu is an excellent and elaborate work on Chinese Husbandry, in sixty books, illustrated by numerous plates. When the author died, in 1633, it was not yet complete.

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[29] 閣老 *Ko lao.* Grand Secretary.

A certain 子龍 *Tsz' lung* received the manuscript from the author's grandson, and with the assistance of other scholars, he arranged the matter, added some new information, and published the whole in 1640.

The first three books are occupied with quotations from the Classics and other works.

Books 4—5. On the Division of Land.

Books 6—11. On the Processes of Husbandry.

Books 12—20. On Hydraulics. The two last books contain a record of the methods adopted in Europe.

Books 21—24. On Agricultural Implements.

Books 25—30 are devoted to the Art of Planting. Here we find short but characteristic descriptions of cultivated plants and directions for growing them.

Cereals (25—26): Panicum miliaceum. Rice, Panicum italicum, Sorgho, Maize, Echinochlœa crus galli, Soja bean, Phaseolus radiatus. Vicia Faba, Pisum sativum, Dolichos sinensis, Lablab, Wheat, Barley, Buckwheat, Sesame.

Cucurbitaceous plants, *Water plants*, *Roots*. *etc.* (27): Cucumber, Benincasa cerifera, Thladiantha dubia, Luffa ægyptiaca, Water-melon, Solanum melongena, Lagenaria, Colocasia esculenta, Nelumbium speciosum, Trapa, Euryale ferox, Eleocharis tuberosa, Sagittaria, Hydropyrum latifolium, Dioscorea sativa, Batatas edulis, Raphanus sativus, Brassica napus, Daucus Carota.

Vegetables (28): Malva verticillata, Althæa rosea, Basella rubra, Brassica rapa, Brassica chinensis, Allium sativum, Allium fistulosum, Allium odorum and other species, Ginger, Sinapis, Coriander, Oil-cabbage, Spinach, Amaranthus Blitum, Chrysanthemum coronarium, Beta vulgaris, Celery, Lettuce, Medicago sativa, Perilla ocimoides, Polygonum, Stachys affinis, Mushrooms.

Fruits (29. 30): Jujube, Peach, Plum, Apricot, Pear, Chestnut, Haselnut, Crab-apple, Diospyros Kaki, Diospyros Lotus, Pomegranate, Nephelium Litchi and Longan, Canarium album and Pimela, Prunus pseudocerasus, Myrica sapida, Vitis vinifera, Salisburia adiantifolia, Eriobotrya japonica, various Oranges, Citrus decumana, Citrus digitata, Citrus japonica, Mulberry, Çydonia sinensis, Cratægus pinnatifida and other species, Sugar-cane.

Books 31—34. On Rearing Silkworms.

Books 35—36. On the cultivation of Cotton[30] and other Textile plants.

Cotton, Bœhmeria nivea, Cannabis sativa, Sida tiliæfolia, Pueraria Thunbergiana.

Books 37—38. On Planting Trees.

Ulmus pumila, Catalpa Bungeana, Pinus sinensis, Cunninghamia sinensis, Thuja orientalis, Juniperus chinensis, Cedrela sinensis, Zanthoxylum, Broussonetia papyrifera,

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[30] The chapter on the cultivation of Cotton was translated by C. Shaw, in the Chinese Repository XIV (1849) p. 449—469.

Sophora japonica, Salix babylonica. Populus, Ligustrum lucidum and other trees upon which the Wax-insect lives.[31] Stillingia sebifera, Varnish-tree. Gleditschia sinensis, Chamærops Fortunei, Oak, Melia Azedarach, Pyrus betulæfolia, Pyrus spectabilis, Cocoa-nut tree, Gardenia florida, Quercus spec.

Books 39—40. On the cultivation of various plants.

Bamboo, Tea-plant, Chrysanthemum, Safflower, Indigo plants, Lithospermum erythrorhizum, Rehmannia glutinosa, Lycium chinense. Cassia Sophera, Polygonatum, Lilium tigrinum, Job's-tears, Plantain, Hemerocallis graminea, Brassica, Limnanthemum, Arundo Phragmites, Typha.

Book 41. Breeding Animals.

Book 42. Manufacture of Food.

Books 43—60. Provision against times of scarcity. In this section the whole matter of the *Kiu huang pen ts'ao* (see above No. 35) with all the drawings is reproduced (books 46—59).

In the last book (60) the 野菜譜 *Ye ts'ai pu*, a small treatise on wild growing Vegetables (60 species), is reprinted. (See alph. list 1077.

THE 授時通考 SHOU SHI T'UNG K'AO.

This is a comprehensive work on Agriculture and Horticulture and kindred industrial sciences, with numerous illustrations, the most recent work of note of this class. It was compiled by Imperial command and published in 1742, in 78 books. It is well known also in Europe, the great sinologue Stan. Julien having frequently made translations from it. The Shou shi t'ung k'ao, however, is nothing but a compilation, made without much critical judgment, from previous works; and very little original matter is found in it. It seems to me that the Nung cheng ts'üan shu, reviewed above, has a much higher value in this regard, but the Shou shi t'ung k'ao is important as a vast mine of quotations. The engravings relating to plants are very rude.

A synopsis of the work has been given by Baron (now Marquis) L. d'Hervey de St. Denys in his *Recherches sur l'Agriculture et l'Horticulture des Chinois.* It is divided into eight sections comprising 78 books.

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[31] The article on Insect wax, and the trees upon which the insects feed, was translated by Stan. Julien. See: Industries de l'Empire Chinois par Stan. Julien et P. Champion, p. 109.

I. On the Seasons. Books 1—6.

II. On the Nature of the Soil, Division of Land, Irrigation. Books 7—15. In the eighth book we find geographical maps of the 18 provinces of the Empire.

III. On the Cultivation of Cereals. Books 19—30.

Rice, Panicum italicum, Panicum miliaceum, Sorgho, Maize, Wheat, Barley, Rye (from Russia), Buckwheat, Oat.—Soja bean. Phaseolus radiatus, Pisum sativum, Vicia Faba, Dolichos sinensis, Lablab vulgaris and other leguminous plants.—Hemp, Agriophyllum gobicum, Ricinus communis, Echinochloa crus galli, Eleusine Coracana, Coix Lachryma.

IV. On Agricultural Implements, with numerous illustrations. Books 31—41.

V. Imperial Edicts regarding Husbandry. On the Sacrifices offered to the Spirit of the soil. On the Ceremony of Ploughing the soil. Books 42—51.—Drawings illustrating the Processes of Husbandry, Sericulture, etc. Books 52—53.

VI. Preservation of Grains. Granaries. Books 54—57.

VII. Additional matter on Agriculture. After some remarks on Fences and on Grafting trees (58) short accounts of cultivated plants are given, accompanied with drawings.

Vegetables (59—62): Turnip, Chrysanthemum coronarium, various species of Artemisia, Brassica chinensis, Sinapis, Spinach, Amarantus Blitum, Portulacca oleracea, Basella rubra, Malva verticillata, Sonchus arvensis, Ipomœa reptans, Brassica chinensis oleifera, Edible Ferns (Pteris aquilina), Chenopodium album, Capsella Bursa pastoris, Dioscorea sativa, Colocasia esculenta, Stachys affinis, Batatas edulis, Raphanus sativus, Daucus Carota, Lactuca sativa, Limnanthemum. Celery, Arundo phragmites, various Pumpkins, Melon pumpkin, Benincasa cerifera, Cucumber, Luffa ægyptiaca, Lagenaria, Solanum melongena, Mushrooms, Ginger, various species of Zanthoxylum, Capsicum annuum, Fennel, Star Anise, Allium odorum, Allium fistulosum, Allium sativum, and other species. Coriandrum sativum. Medicago sativa.

Fruits (63—66): Plum, Apricot, Peach, Pear, Apple, Prunus pseudocerasus, Myrica sapida, Eriobotrya japonica, Crab-apple, Cratægus pinnatifida, Hovenia dulcis, Vitis vinifera, Jujube, Diospyros Kaki, Diospyros Lotus, Cydonia sinensis, Punica granatum, Chestnut, Torreya nucifera, Hazelnut, seeds of Pinus coraënsis, Walnut, Salisburia adiantifolia, Nephelium Litchi and Longan, various Oranges, Citrus japonica, Citrus decumana, Canarium album and Pinnela, Cocoa-nut, Ficus Carica, Xanthoceras sorbifolia.

Melon, Water-melon, Nelumbium speciosum, Sugar-cane, Water-caltrop, Euryale ferox, Eleocharis tuberosa, Sagittaria.

Trees (67—68): Pinus sinensis, Thuja orientalis, Juniperus chinensis, Catalpa, Cunninghamia sinensis, Cedrela sinensis, Sterculia platanifolia, Broussonetia papyrifera, Sophora japonica, Ulmus pumila, Salix babylonica, Tamarix chinensis, Populus, Wax-insect trees and Insect-wax,[32] Stillingia sebifera, Varnish-tree, Chamærops Fortunei, Gleditschia sinensis, Gardenia florida, Lycium chinense, Aralia.

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[32] Translated by Stan. Julien. See: Industries de l'Empire Chinois l. c. p. 106.

Various cultivations (69): Bamboo, Tea-plant. Safflower, Indigo plants. Lithospermum erythrorhizon, Rehmannia glutinosa, Typha, Matting grass, Juncus effusus.

Domestic Animals. Books 70—71.

VIII. On Rearing Silkworms and Planting Mulberry-trees.[33] Books 72—76.

Additional section on Textile plants. Books 77—78.

Cotton, Hemp, Bœhmeria nivea, Sida tiliæfolia, Pueraria Thunbergiana,[34] Musa.

3. CHINESE GEOGRAPHICAL WORKS CONTAINING BOTANICAL INFORMATION.

A vast part of native literature is devoted to the Geography of China proper and the adjacent countries. The Chinese are accustomed to give in their topographical works more or less detailed accounts of the Natural productions. Thus in the 禹貢 *Yü kung*, already mentioned (see above Shu king), the earliest description of China extant, the productions of the soil are enumerated for each of the nine provinces of the Empire.

The next General Description of China, which has been handed down to us, is the 太平寰宇記 *T'ai p'ing Huan yü ki*, in 193 books, by 樂史 *Lo Shi*, published during the period T'ai p'ing, A. D. 976—983. The natural productions are given for each prefecture.[35]

The 元一統志 *Yüan I t'ung chi*, or Great Geography of the Yüan or Mongol dynasty, seems to have survived only in some quotations drawn from it, and preserved in the writings of authors of the Ming; but the General Description of China referring to this latter dynasty is still extant and is not a rare book. It was published by 李賢 Li Hien, with the assistance of others, in 90 books, with numerous maps, in 1461, under the title 大明一統志 *Ta Ming I t‘ung chi.*

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[33] These five books were translated by Stan. Julien. *Sur la Culture des Muriers et l'Education des Vers à soie.* 1837.

[34] The articles on the cultivation of Bœhmeria nivea and Pueraria Thunbergiana were translated by Stan. Julien. See: Industries de l'Empire Chinois l. c. 163, and Comptes rendus de l'Académie des sciences XVII, 1843, p. 421.

[35] In 1842 Prof. W. Schott, Berlin, published in the "Abhandlungen der Kgl. Akademie der Wissenschaften," p. 245—385. a paper: Skizze zu einer Topographie der Producte des Chinesischen Reiches. After some bibliographical notices of the Pen ts'ao kang mu and other native works on Natural History, the author enumerates the Natural Products of China according to their geographical distribution. His information was drawn from the T'ai p'ing Huang yü ki and another descriptive account of China, the Kuang yü ki, which we have mentioned on a previous page.

The Great Geography of the Empire of the present dynasty, the 大清一統志 *Ta Ts‘ing I t‘ung chi*, was compiled by Imperial command, and the first edition of it was published about the middle of last century. In this well known work, in 500 books, the matter is arranged on the same plan as that adopted for previous works of this class. The different provinces are taken up *seriatim*, and the descriptive accounts, given systematically for each prefecture, conclude with an enumeration of the natural productions.

Besides this there exist many detailed descriptions of single provinces of China, and special works treat even of the greater part of the prefectures and districts. One or more books in these topographies are always devoted to an account of the natural productions, 土產 *t‘u ch‘an* or 物產 *wu ch‘an*. In some cases these are specified in great detail, accompanied by interesting remarks derived from local observers. I subjoin in the sequel a list of those native topographical works, or 志 *chi*, of the present dynasty, which I have had an opportunity of consulting, and which are frequently quoted in native botanical treatises. They have been published, for the most part, by Imperial authority, and the majority of them are based upon previous compilations, bearing sometimes the same titles. Some of these original accounts of the topography of the provinces, prefectures, or districts of the Empire can be traced back to a period as early as the 11th or 12th century. A great number of them were published for the first time during the Ming period.

The 畿輔通志 *Ki fu t‘ung chi*, or Topography of the Province of Chihli, published in 1729, in 120 books. But a description of this province was drawn up much earlier, in 1672. The natural productions are enumerated in books 56 and 57.

The 天津縣志 *T'ien tsin hien chi*, in 24 books, 1739. District of T'ien tsin in the province of Chihli.—Natural productions, book 13.

The 宣化縣志 *Süan hua hien chi*, in 30 books, 1711. District of Süan hua in Northern Chihli. Natural productions, book 14. Interesting accounts of plants.

The 承德府志 *Ch'eng te fu chi*, in 60 books, 1831. The prefecture of Ch'eng te fu in Northern Chihli, beyond the Great Wall, is known also under the name of 熱河 *Je ho* (hot river), where one of the summer palaces of the Emperor is situated (Je hol in European works). This compilation is partly based upon the 熱河志 *Je ho chi*, in 80 books, published in 1781. It contains very interesting details relating to plants and animals of Mongolia, in books 28, 29.

The 盛京通志 *Sheng king t'ung chi.* This is properly a Topography of Sheng king or Southern Manchuria, but it contains also accounts of the Northern part of Chinese Manchuria (Girin, Tsitsihar, etc.). The original edition of this work is in 32 books; the second, 1736, in 48 books. The last edition, much enlarged, issued in 1779, comprises 120 books. The natural productions of Manchuria are detailed in several books. Book 106 is devoted to plants, cultivated as well as wild, and gives many interesting particulars with respect to the Flora of these little-known tracts. Manchurian names of plants are occasionally given together with the Chinese appellations.

The 山西通志 *Shan si t'ung chi*, 1734, in 230 books, a Topography of the province of Shansi. Natural productions, book 47. There is a description of the same province, the 山西志 *Shan si chi*, in 16 books, published in 1474. See Sz' k'u ts'üan shu LXXIII, 1.

The 山東通志 *Shan tung t'ung chi*, or Topography of the province of Shantung. The first edition was published about the middle of the 16th century and is still extant. Sz' k'u ts'üan shu

LXXIII, 17. The last edition, 1736, in 36 books. Natural productions, book 24.

The 陝西通志 *Shen si t'ung chi*, or Topography of the province of Shensi. First edition during the reign of Kang hi. Another edition, 1735, in 100 books. Natural productions in books 43, 44.
There is a similar work, entitled 陝西志 *Shen si chi*, in 30 books, published in 1517. See Sz' k'u ts'üan shu LXXIII, 4.

The 甘肅通志 *Kan su t'ung chi*, or Topography of the province of Kansu, in 50 books, 1736. Natural productions, book 12.

The 河南通志 *Ho nan t'ung chi*, or Topography of the province of Honan. A work of this name existed in the Ming period (Kia tsing). During the present dynasty one edition of the Ho nan t'ung chi was published at the end of the 17th century. Last edition 1744, in 80 books. Natural productions in book 29.

The 江南通志 *Kiang nan t'ung chi*. Kiang nan is the old general name for the present provinces of *An hui* and *Kiang su*. The work was published in 200 books, in 1736. Natural productions in book 86.

The 安徽通志 *An hui t'ung chi*, or Topography of the province of Anhui, in 260 books, 1830. Natural productions in book 64.

The 蘇州府志 *Su chou fu chi*, or Topography of the prefecture of Su chou in Kiang su. Two works of this name were published during the Ming, and several editions of it appeared during the present dynasty. See Wylie's Notes on Chin. Lit. 37. The last edition of 1824 is in 150 books. Natural productions in book 18.

The 湖廣通志 *Hu kuang t'ung chi*. The two provinces of Hu pei and Hu nan are known under the general name of Hu kuang. During the reign of Ming Wan li (end of 16th century) a description of these regions appeared with the title 湖廣總志

Hu kuang tsung chi, in 98 books. See Sz’ k‘u ts‘üan shu LXXIV, 10. The first edition of the Hu kuang t‘ung chi was published in 1684. The last edition, 1733, is in 120 books.

The 湖北通志 *Hu pei t‘ung chi*, or Topography of the province of Hu pei, in 100 books, 1757. Natural productions in book 23.

The 湖南通志 *Hu nan t‘ung chi*, Topography of the province of Hu nan, in 174 books, 1757. Natural productions in book 50.

The 江西通志 *Kiang si t‘ung chi*, Topography of the province of Kiang si, in 162 books, 1729. Natural productions in book 27.

There is a work of the same name in 37 books, published during the Ming, Kia tsing period. See Sz’ k‘u ts‘üan shu LXXIII, 8.

The 浙江通志 *Che kiang t‘ung chi*, Topography of the province of Che kiang. The original work, in 72 books, dates from the time of the Ming, first half of the 16th century. Several editions have been issued during the present dynasty, one in 1684, in 50 books, natural productions in book 17; another one, much enlarged, in 120 books, was published in 1736. Natural productions in books 101—107.

The 福建通志 *Fu kien t‘ung chi*, Topography of the province of Fu kien, in 78 books, 1737. Natural productions in books 10—11. A supplement to the work was published, in 92 books, in 1768, with the title 福建續通志 *Fu kien sü t‘ung chi*. Natural productions in books 9—10.

A similar description of the province of Fu kien was published in 87 books with the title of 八閩通志 *Pa Min t‘ung chi*, towards the end of the 15th century. Sz’ k‘u ts‘üan shu LXXIII, 4.

The 臺灣府志 *T‘ai wan fu chi*, a Topography of the portion of the island of Formosa belonging to the Chinese Empire. First edition 1694, a second 1741, a third 1747, in 26 books. See Wylie l. c. 38. In "Notes and Queries on China and Japan," 1868, p. 134, is a paper: Notes on the Vegetable kingdom of Formosa from the T'ai wan fu chi.

The 廣東通志 *Kuang tung t'ung chi*, or Topography of the province of Kuang tung. A work of this name was first published during the Ming reign of Kia tsing, in 40 books; and another during the reign of Wan li, in 72 books. See Sz' k'u ts'üan shu LXXIV, 2, 12. During the present dynasty the first edition of the Kuang tung t'ung chi appeared in 1693; another edition, in 64 books, in 1731. A thoroughly revised edition was issued in 1822, in 334 books. Natural productions in books 94—99. There is a new revised edition published in 1864.

The 廣西通志 *Kuang si t'ung chi*, or Topography of the province of Kuang si. A work of this name, according to the Sz' k'u ts'üan shu LXXIII, 16, first appeared during the reign of Ming Kia tsing, in 60 books. In 1733 the Kuang si t'ung chi was published in 128 books. In 1801 a new revised edition was published in 279 books. Natural productions in books 89—93.

The 貴州通志 *Kui chou t'ung chi*, or Topography of the province of Kui chou. A work of this name was first published in 12 books, in 1541. See Sz' k'u ts'üan shu LXXIV, 7. The Kui chou t'ung chi of the present dynasty appeared in 1741, in 46 books. Natural productions in book 15.

The 四川通志 *Sz' ch'uan t'ung chi*, or Topography of the province of Sz' ch'uan. First edition, in 47 books, 1729. A new edition, in 200 books, 1816. Natural productions in books 74, 75.

There is a work, 四川總志 *Sz' ch'uan tsung chi*, in 34 books, published during the Ming, Wan li period. Sz' k'u ts'üan shu LXXIV, 13.

The 雲南通志 *Yün nan t'ung chi*, or Topography of the province of Yün nan. A work of this name, in 18 books, is mentioned in the bibliographical section of the Ming history.

There are also noticed several other descriptions of Yün nan. The Yün nan t'ung chi of the present dynasty appeared first in 1691, in 17 books. Another improved edition was issued in 30 books, in 1729.

Another descriptive account of the province of Yün nan was published in 1808, with the title 滇繫 *Tien hi* (Tien being an old name of that province). 40 books. Natural productions in book 5.

The 琉球國志略 *Liu kiu kuo chi lio*, in 16 books, published in 1757. This is a topographical account, etc. of the Liu kiu (Lew chew) islands. Natural productions in book 14. Very interesting is the chapter on the plants of the islands.

I may finally mention here the 南越筆記 *Nan yüe pi ki*, by 李調元 *Li Tiao yüan*, a native of Mien chou (Sz' ch'uan), of the present dynasty. It is a descriptive account of remarkable objects in the province of Kuang tung, in 16 books, containing interesting notes on Southern Chinese plants.

This record is found reproduced in the 函海 *Han hai* collection of reprints, 1783.

4. EARLY ACQUAINTANCE OF THE CHINESE WITH INDIAN AND WESTERN ASIATIC PLANTS.

After Buddhism was introduced into China, A. D. 68, a frequent intercourse between this country and India commenced and did not cease for many centuries. Chinese Buddhist priests visited the land of Buddha, and Hindoo priests were invited by the Chinese Emperors to translate the Sacred writings from Sanscrit. Sanscrit names of Indian natural objects are frequently met in Buddhist works. These names appear in the Chinese translations rendered by Chinese characters, imitating the foreign sounds. Early attempts have also been made by the Chinese to explain the Sanscrit names of plants, animals, minerals and other objects, and to identify them with the corresponding Chinese terms. Although it does not seem that the Indian or Persian systems of medicine have ever influenced Chinese views on the art of healing or modified the sacred rules established in this respect by their primeval Emperors, it can nevertheless be concluded from some early Chinese works on Indian or Western medicines, the titles of which have been preserved, that the Chinese took an interest in the subject. In the History of the *Sui* dynasty (589—618), book 34, Section on Literature, the following titles of collections of foreign medical prescriptions are mentioned:

The 婆羅門藥方 *Po lo men Yao fang*, in 5 books. Medical Prescriptions of the Brahmans (Hindoos).

The 婆羅門諸仙藥方 *Po lo men Chu sien yao fang*, in 20 books. Medical Prescriptions of the Immortals of the Hindoos.

The 乾陀利治鬼方 *Kan t‘o li Chi kui fang*, in 10 books. Medical Prescriptions for curing those possessed by demons; used in Kan t‘o li.[36]

The 西域名醫所集要方 *Si yü Ming i su tsi yao fang*, in 4 books. Medical Prescriptions of celebrated physicians in the Countries of the West.

The 西域諸仙所說藥方 *Si yü Chu sien su shuo yao fang*, in 23 books.

The 出胡國方 *Ch‘u Hu kuo fang*. Prescriptions from the Hu kingdoms, in 10 books, by 摩訶 *Mo ho*, who was a 胡沙門 *Hu sha men*, or priest of the Hu.[37]

The Pen ts‘ao kang mu notices a 胡本草 *Hu Pen ts‘ao*, or Materia medica of the Hu. See above History of Materia medica No. 14.

Stan. Julien (Mél. de Géographie asiat. p. 144) mentions a Chinese work 翻外國語 *Fan wai kuo yü*, of the 6th century, which he believes to be a translation of the well-known Sanscrit vocabulary Amara Cosha (first century B. C.).

During the T‘ang dynasty (618—907) the Chinese took a great interest in the kingdoms of India, which they then reached by land as well as by sea. They became acquainted with many vegetable productions of those countries as well as of the Indian Archipelago, much valued in China up to the present day. Thus in the Chinese works of that period on Geography and Natural History we often meet with Indian names of plants. Under the Sung dynasty (10—12th century) regular Sanscrit schools with Hindoo priests teaching the language were established in China. A Glossary of Sanscrit proper names occurring in the sacred writings, published during that period, has come down to us. It bears the title 翻譯名義 *Fan i ming i* and was written by a priest named 法雲 *Fa yün*, in 1143, in 20 books, one of which is devoted to minerals, animals and plants. 75 Sanscrit names of plants are given there, rendered by Chinese sounds, and explained and identified, as far as possible, with the respective Chinese equivalents. About one-half of these names of plants may be found in Dr. Eitel's Handbook of Buddhism (1871), with the scientific botanical names added.[88]

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[36] According to the History of the Liang dynasty (502—557) Kan t‘o li was an island in the Southern Sea, somewhere near Annam it seems.

[37] By *Hu* the Chinese generally understand Western Asia, sometimes also India.

The term 梵書 *fan shu* (fan books), frequently met in the Pen ts'ao kang mu, in connection with Sanscrit names of natural objects, apparently denotes Sanscrit writings in general. *Fan* or properly 梵摩 *fan mo* means Brahma.

From the 6th century the Chinese maintained frequent intercourse not only with India, but also with Persia, and during the T'ang dynasty, in the 8th and 9th centuries, with the Empire of the Kalifs, it seems by sea as well as by the overland route. In Chinese works of that period we find not infrequent accounts of remarkable natural productions of Western Asia. I may only notice here the 酉陽雜俎 *Yu yang tsa tsu*, in 20 books, written by 段成式 *Tuan Ch'eng shi*, towards the end of the 8th century (Wylie l. c. 155). According to Mayers (Chin. Read. Man. p. 211) the author died in 863. The Yu yang tsa tsu contains much information regarding the productions of China and of foreign countries, especially India and Persia.

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[88] It may not be out of place to say here a few words on the attempts made by European Sanscrit scholars and botanists to ascertain the botanical names of plants noticed in the ancient Sanscrit Vocabulary, Amara Cosha, and other writings in the classical language of the Hindoos, which was a dead language, not spoken even at the time of Buddha. The results of these investigations have been brought together in J. F. Watson's *Index to the native and scientific Names of Indian and other Eastern Plants*, 1868, and also in E. Balfour's *Cyclopædia of India*, the second edition of which appeared 1871—1873. The latter is a comprehensive work in five bulky volumes, generally compiled from good sources, but without much critical judgment and without thorough acquaintance with the immense and varied matter embraced in the Cyclopædia of India. Thus the author does not hesitate to admit the existence of Sanscrit names for such plants as *Agave americana*, *Anacardium occidentale*, *Anona squamosa* and *reticulata*, *Helianthus annuus*, *Mirabilis Jalapa*, *Nicotiana Tabacum*, *Zea Mays* and other plants, which, as is well known, have been introduced into Asia from America, since the discovery of the New World. This fact induces me to doubt whether the identifications of ancient Sanscrit names of plants, as given in the above-mentioned works and Sanscrit dictionaries, are at all reliable. With respect to the author of the above-mentioned Amara Cosha, Mr. Balfour states that he was one of the nine poets at the court of Viçramaditya, and that he is supposed to have lived about A. D. 948. But under Viçramaditya we read that he reigned B. C. 56. Such contradictory statements on the same subject under different heads are not uncommon in the Cyclopædia.

There is a Chinese Vocabulary of Foreign Languages, published by the 四夷館 *Sz' i kuan*, or Department of Interpreters,[89] apparently in the 15th century, in which amongst other terms are given also the names of the most common plants in *Chinese* and in *Persian Uigur*, *Siamese*, *Tibetan*, *Burmese* and two other languages of some tribes at the Southern border of China. The words are all written in the original letters of the respective nations, and their pronunciation is indicated by Chinese characters. These vocabularies form an interesting contribution towards our knowledge of Asiatic names of plants. The Uigur names present a peculiar interest, as very little is known of this language. I may here mention that Mr. Scully has lately published two *Turki Vocabularies of Birds and Plants* in Mr. R. B. Shaw's Vocabulary of the Language of Eastern Turkistan.

Let me notice finally the 西域圖志 *Si yü t'u chi*, a Description of Eastern Turkistan and the Chinese dependencies in the West, illustrated by a series of maps. It was published in 1756, in 52 books. In book 43 some details with respect to the natural productions of these regions are given. We find there the native (Turki) names (rendered by Chinese sounds) of more than fifty common plants, with the Chinese equivalents.

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[89] See Klaproth's Verzeichniss der Chines. und Mandsh. Bücher der Bibliothek in Berlin, 1822.

5. HISTORY OF MATERIA MEDICA AND BOTANY IN JAPAN.

The greater part of the information contained in this record has been derived from a very able unpublished paper, drawn up at my request from reliable native sources by Dr. Geerts, a well-known scholar residing in that country, who with rare liberality has placed at my disposal the results of his researches into the history of Medicine and Botany in Japan.

The early civilisation of Japan, as well as that of Corea and Annam, was based almost entirely upon Chinese principles of culture, freely adopted by the barbarian neighbours of the mighty Chinese Empire. Annamese speech is obviously only a dialect of Chinese. It is known that the Japanese have two modes of writing, the alphabet of 48 characters, *iroha*, used in the simple style of writing, and the ideographical *Chinese characters* employed in public documents and scientific writings. The iroha, now considered to be the modification of certain familiar Chinese characters, is said to have been introduced into Japan from Corea in the second and first centuries B. C. Previous to that time the Japanese possessed no written language of their own.

The introduction of the Chinese written language into Japan is recorded in Japanese annals to have taken place in the 3rd century of our era. During the reign of the Japanese Empress *Jingo tenno*, who invaded Corea at the end of the 2nd century, Chinese books were first brought thence to Japan. About A. D. 285 *Atogi* (阿 屠 岐), a son of the King of Corea, came on an embassy to the court of Japan, where he remained one year. He brought also some Chinese books, and at his instigation *Wani* (王 仁), a distinguished Chinese scholar, was invited from Corea to Japan to teach Chinese. He arrived in 286 and was appointed Instructor of the Imperial Princes. To him the introduction of Chinese characters into Japan is attributed. He is said to have been a native of the Chinese Kingdom of *Go* (吳 *Wu*), the Eastern of the three states into which China was divided after the Han dynasty, and a descendant of the Emperors of that house. He lived in *Fakusai* (百 濟 *Po tsi*), in South-eastern Corea.—From this time the Chinese Classics and Literature of all branches gradually became the study of all higher classes in Japan, the nobles, military officers, priests and physicians. Thus from China was derived the knowledge of Agriculture, Manufactures, the Arts, Religion, Philosophy, Ethics, Medicine, etc.

As to the art of healing some native system of curing diseases existed no doubt in Japan in ancient times. *Oanamuchi-no-Mikota* and *Sukuna Hikona no Mikota*, two famous Japanese physicians, are both worshipped as medical divinities and as founders of the art of healing. But at an early period the Chinese principles of medicine were entirely adopted in Japan and have maintained themselves in that country up to the present time.

Japanese annals record that A. D. 420 a Chinese physician, by name 金波鎮漢紀武 (in Chinese *Kin po chen han ki wu*), was invited by the Japanese Emperor from Corea to Japan. He came from the Corean kingdom *Shin ro* (新羅 *Sin lo*).

In 554 *Tei yu da* (丁有陀) and *Han riyo* (潘量), two apothecaries, natives of the Corean kingdom of Kudara, arrived in Japan to teach Chinese medicine there. Six other Coreans are recorded to have been invited for the same purposes. The Chinese works on Materia medica known then in Japan were the 神農本草經 and the 名醫別錄 (see above Hist. Mat. med. No. 1 and 7).

In 686 court physicians were for the first time appointed in Japan, and in 702 a great University for the promotion of Medicine, Astrology and other Chinese sciences was established at *Dai sai*, the seat of the Central government at that time. This place was situated in the Northern part of the island of Kiu shiu.

About the year 850 this University at Dai sai was improved. The different branches of medical science were taught separately, viz.: Internal diseases, External diseases, Surgical operations, Infantile complaints, Diseases of the eyes, the ears, the mouth, teeth, etc., Acupuncture.

From the year 717 a Botanical Garden was connected with the University, in which medicinal plants were cultivated. From the year 787 Materia medica was taught according to the Chinese treatises 新修本草 (new revised Pen ts'ao) and the 唐本草 (see above Hist. Mat. med. No. 11).

In 794 *Kiyoto* became the capital of Japan, and the Emperor Kan mu tenno established there a University for the promotion of Chinese sciences. At about the same time libraries were first founded in Japan.

In 808 *Hirosada*, a Japanese physician, a native of the province of Idzumo, published in Japanese a Chinese work on Materia medica, entitled 大同類聚方.[40] It was republished in 1827.

From the second half of the 11th century a considerable trade in drugs was carried on between Japan and China.

In the second half of the 15th century the leading works on Materia medica studied in Japan were the Chinese treatises 諸家本草 and the 開寶本草 (see above Hist. Mat. med. No. 21, 22).

History has preserved the names of three Japanese physicians of the 15th and 16th centuries famed for their knowledge of drugs, viz.: *Takeda Sadamori* (1467), *Osada Tokuhon* (1500), and *Yoshida Soke* (1550).

The Chinese 本草綱目 *Pen ts'ao kang mu*, published as we have seen at the close of the 16th century, was known in Japan soon after its appearance. It was translated into Japanese with the Japanese title *Hon zo ko mo ku*, in 1714, by Ina Nobuyoski (Ina Wakasui).

The 救荒本草 *Kiu huang pen ts'ao* (l. c. No. 35) was translated two years later.

The historical facts recorded in the above sketch of the development of botanical knowledge in Japan leave no doubt that the Materia medica of the Japanese was originally entirely based upon Chinese works, which have been reprinted and commented upon in Japan, especially since the 9th century. It is further known that from the 7th and 8th centuries learned Chinese and Corean physicians and Buddhist priests frequently came to Japan; whilst on the other hand Japanese physicians used to visit China with the purpose of studying medicinal plants. They thus had an opportunity of comparing Chinese and Japanese plants, and were enabled to identify the species found in both countries. Thus we find in Japanese works on Botany, besides the popular

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[40] Chinese catalogues do not mention this treatise.

Japanese appellations of plants, in many instances also Chinese names written in Chinese characters. It seems that most of these identifications can be traced back to the period of the Chinese 唐 T'ang dynasty, for the character T'ang (*Kara* in Japanese), frequently found in Japanese names of plants, is always used there to designate the Chinese origin of a plant. But some Chinese names applied now-a-days to Japanese plants occur for the first time in the Kiu huang pen ts'ao, and this proves that Japanese botanists subsequent to the time of publication of this work (beginning of the 15th century) continued to determine the plants of their country from Chinese botanical works. It can be said that these identifications of Chinese and Japanese plants made by Japanese botanists at different times are correct upon the whole, at least as far as the genus is concerned. Sometimes the same Chinese name is applied in China and in Japan to different species of the same genus, seldom to plants having no resemblance to each other. The tree 樗 *ch'u* in Chinese books is *Ailantus glandulosa;* but in Japan where the tree is not found the above Chinese character is applied to *Euscaphis staphyleoides.* Sieb. et Zucc. fl. Japon. I, 124. We learn from Siebold that the inner bark of the root of this Japanese shrub is largely used in the country as an efficacious remedy in dysentery, just as the inner bark of the root of Ailantus is used by the Chinese.—馬先蒿 *Ma sien hao* in China is *Incarvillea sinensis,* not observed in Japan, where the above Chinese name designates *Pedicularis resupinata.*

The Chinese names of plants given in Japanese botanical works together with the popular Japanese names act there the part of our scientific botanical names.

It was in 1709 that the first original Japanese work on Materia medica was published by *Kaibara Rakuken,* with the title 大和本草 *Yamato Honzo,* in 18 books.

A small treatise on Japanese Botany was published about the middle of the last century, with the title 花彙 *Kwa wi,* by the Japanese botanist *Yo nan shi,* assisted by his pupil *Ono Ranzan.* The Kwa wi comprises eight books, in which 200 plants are described. The drawings accompanying the text are not of a high order. This treatise was translated into French by Dr. L. Savatier in 1873.

Ono Ranzan, the collaborator of Yo nan shi, subsequently became a celebrated botanist,—not only from a Japanese point of view. In his writings we first observe the influence of European science upon Japanese views on botany. The Dutch, after the expulsion of Europeans in 1639, were during more than two centuries the only European nation allowed to carry on trade with Japan; but they were not allowed to see more of Japan than the little island of Decima (Nagasaki). Notwithstanding this restriction they succeeded in awakening among the Japanese an interest in European science, especially natural history; and since the middle of the last century we find in Japan many native botanists who have studied botany from European books.

Ono Ranzan, whom Siebold styles the Linnæus of Japan, wrote an important commentary on the Pen ts'ao kang mu, with the title 本草綱目啓蒙 *Hon zo ko moku kei mo*, in 35 books, in which he displays a considerable critical judgment. He proves also that the majority of the natural productions of China are likewise found in Japan. This work was published in 1804, after the death of the author, by his grandson, who in 1847 issued another revised and enlarged edition.

Further particulars with respect to Japanese botanists and their scientific productions may be found in the introductory part of Dr. A. I. C. Geerts' "Produits de la nature japonaise et chinoise," 1878. I shall confine myself to saying a few words on some more recent Japanese botanical works, which I myself possess and from which I have derived great assistance in determining plants described and depicted in Chinese botanical works.

The 本草圖譜 *Hon zo dzu fu*, published in 1828, in 96 books, by Iwasaki Tsunemasa of Yeddo, describes 1795 plants and gives as many coloured drawings. It is now very difficult to obtain a complete printed copy of the work, the greater part of the edition having probably been destroyed by fire. I possess only the first ten books of it, but have had an opportunity of consulting a complete copy in the Library of the Imperial Academy at St. Petersburg. The arrangement followed in it is that of the Pen ts'ao kang mu.

Another Japanese general work on Botany of much higher claim than the above-mentioned, was published in 1856, with the title 草木圖說 *So moku dzu setsu*, by Inuma Chojun, a pupil of Dr. Siebold. But only 20 books of this Japanese Flora japonica have been issued. They comprise the first section, Herbaceous plants (with the exception of Grasses), wild and cultivated, arranged according to the system of Linnæus, and accompanied with 1215 admirably executed drawings, made from nature and answering perfectly all scientific purposes. It has full claim to the accuracy of a scientific work. Besides the Japanese name for each plant, the Chinese names are also given, if such exist, and in many cases we find also the Linnean or popular Dutch names added. This work is frequently quoted in Maximowicz's numerous publications on the Flora of Japan. He quotes it (after Miquel) with the incorrect title *Soo bokf.* I have heard that in 1875 a new enlarged edition of the So moku dzu setsu has been published by Tanaka. Dr. Savatier has attempted, with the assistance of Franchet, to determine the plants not only of the So moku dzu setsu, but also as far as possible those represented on the plates of the Hon zo dzu fu. See their "Enumeratio Plantarum in Japonia sponte crescentium," 1876.

I possess also a short but very valuable Japanese treatise on Poisonous plants, the 有毒草木圖說 *Yu doku so moku dzu setsu*, illustrated by fine wood-cuts, in two books, with 123 plates. This was published in 1827 by the Japanese Horticultural Society of the province of Owari.

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6. On the Botanical knowledge of Coreans, Manchoos, Mongols, and Tibetans.

Tributary to China for ages, Corea at an early period universally adopted the Chinese form of civilisation, and it was in Corea that the Japanese first became acquainted with the Chinese language, mode of writing, and literature. Although the Coreans, like the Japanese, possess their own alphabet, there is no national literature in their country, all literary works composed by Coreans having been written in Chinese. One of the best Chinese works on Medicine is of Corean origin. The 東醫寶鑑 *Tung i pao kien*, or Precious Mirror of Eastern Medicine, written during the Ming, at the end of the 16th or beginning of the 17th century, by 許浚 *Hü Pa*, a native of 陽平 *Yang p'ing* in South-western Corea, embraces the whole compass of medicine, as well as Materia medica. It comprises 28 large books and has been several times republished in China. Although it claims in some respects to be original, this originality refers more to the arrangement of the matter, and as can be concluded from the quotations, it was compiled from Chinese authors. It does not seem that Corean Medicine and Materia medica differ from Chinese works on the subject. As in the Corean language a large portion of Chinese words and phrases, even for common expressions, have been borrowed from the Chinese, we need not be surprised to find that many plants grown in Corea are known to the natives only by their Chinese names. Corean names for the most common plants in that country may be found in Dr. Siebold's 類合 *Lui ho*, or *Vocabularium sinense in koraianum conversum*, opus sinicum origine in peninsula Koraï impressum, 1838; and also in Putzillo's Russian-Corean Dictionary (in Russian), 1874.

Lately a more complete Corean dictionary has been published with the title: Dictionnaire Coréen-Français, par les Missionnaires de Corée. Yokohama, 1880.

There is also no original Manchoo system of Medicine or Materia medica extant. As is known, Manchoo literature dates only from the end of the 17th century and consists of translations from Chinese works, such as Dictionaries, the Classics, Histories of China, novels, etc. As far as I know the only Manchoo work on Medicine is a treatise on Anatomy, translated from a European work by the Jesuit Father Parennin, in 1723. My colleague and friend, Dr. Dudgeon, possesses a manuscript copy of this translation, illustrated by beautifully executed drawings. (See his "Report of the Peking Hospital for 1878 and 1879," p. 46.) A manuscript copy of the same, but without drawings, is likewise found in the Library of the Russian Legation at Peking.

An interesting list of Manchoo names of plants and drugs, with the equivalent Chinese names added, is found in the great Comparative Dictionary in Chinese and three other Eastern Asiatic languages, of which we shall speak further on. The Manchoo names referring to Chinese plants not found in Manchuria are frequently forged.

The system of medicine adopted by the Mongol physicians in Mongolia seems to be based on Tibetan principles of the art of healing. The majority of medicines used in Mongolia are compounded of Tibetan drugs.[41] Very little on the subject has hitherto come under the notice of investigators into Eastern Asiatic medicine. There are several Tibetan treatises on the art of healing and Materia medica. Cosma de Körös has given the *Analysis of a Tibetan medical work* in the Journal of the Asiatic Society of Bengal, IV, p. 1, but he does not say much regarding Tibetan medicines. I had once an opportunity of seeing in Peking a kind of *Tibetan Natural history*, with rude drawings, in which the Tibetan names of natural objects were accompanied with the corresponding Chinese names. The book was styled 本草 *Pen t'ao* in Chinese.

Dr. J. Rehmann, a Russian physician,[42] procured in 1805 in Maimaicheng (on the frontier of Mongolia, opposite Kiakhta) 60 Tibetan (or Chinese) drugs used by the Mongol physicians. He examined these specimens with the assistance of the botanist Redowsky and described them (in German) in a small pamphlet entitled: Beschreibung einer Tibetanischen Hand-Apotheke. St. Petersburg, 1811. Rehmann gives also the Tibetan names of each drug in Tibetan letters and the pronunciation in German.

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[41] There is in the city of *Urga*, in Northern Mongolia, an old Tibetan Lama priest, *Cho is den* famed for his skill in curing diseases. His reputation has even spread over Siberia, and Russians from Kiakhta or Irkutsk are not unfrequently seen in Urga submitting to the medical treatment of the old Mongolian Aesculapius, whose medicines are all derived from Tibet. It seems to me that in the majority of cases his success must be attributed to the healthy mountain air of Urga.

[42] Dr. Rehmann accompanied in 1805 the Russian Embassy under Count Golovkin to China. To the same Embassy were attached Redowsky, Adams, and Helm, as naturalists; the celebrated Klaproth as orientalist. As is known Golovkin was obliged to return from Urga to Russia.

As to the drugs derived from the vegetable kingdom, he was of course only in a few cases able to determine the botanical origin of these medicines.

A more complete collection of drugs used in Mongol or Tibetan medicine can be found in Peking in the shop of 萬億號 *Wan I hao*, a rich Chinese firm, well known among the Mongols, Tanguts and Tibetans, as it carries on a great commercial intercourse with these nations and supplies the wants of the merchants and Lama priests who are accustomed to repair to Peking in winter. This shop is situated between the British and Russian Legations, near the so called Mongol market. The proprietor has published a list of 365 drugs obtainable at his store, giving the names in Tibetan and Chinese and adding the pronunciation of the Chinese characters in Tibetan letters. The list is preceded by a short preface and followed by a postscript, both in Mongol and Tibetan. The preface invites ecclesiastics—lama as well as laymen—especially those living in Mongolia and desirous of alleviating the suffering of their fellowmen, to apply to the aforesaid shop for the drugs enumerated in the list in two languages, Tibetan and Chinese. For selecting and arranging this assortment several medical treatises of celebrated physicians are stated to have been consulted. In the postscript it is stated that the drugs offered for sale in the shop of Wan I hao under the above Tibetan names, are not always exactly the same as the original productions of Tibet bearing these names in that country; but their medical virtues are stated to be similar. Purchasers are requested not to suppose that these drugs have been collected without judgment. Besides this the seller directs the attention of the public to the advantage of procuring drugs from a great firm instead of buying them in retail shops. The postscript is signed by Gonbedjan, Professor of the Tibetan school at Peking.

Among the drugs enumerated in this catalogue there are 74 minerals, 22 articles derived from the animal kingdom; the remaining 269 belong to the vegetable kingdom. The greater portion of them can be determined.

The most important guide for identifying Mongol, Tibetan and Manchoo names of natural productions, and especially economic plants and drugs, is without doubt the great Dictionary in four languages, the 四體清文鑑 *Sz' t'i ts'ing wen kien*, published by Imperial command during the reign of Kang hi. A revised edition of it was issued by order of the Emperor K'ien lung about the middle of last century. The books 27—29 deal with plants, and about 600 names of cultivated and wild species are enumerated there in Chinese, Manchoo, Mongol, and Tibetan. The pronunciation of Manchoo and Mongol names is indicated by Chinese characters. As most of the plants mentioned in this dictionary are known to me from the Chinese names given, I have thus been enabled to ascertain the Manchoo, Mongol, and Tibetan names of a considerable number of common plants of Eastern Asia. Very little has hitherto been done in the way of identifying names of plants in these languages. In Balfour's Cyclopædia of India and Watson's Index of native and scientific names of Eastern Plants we find occasionally some Tibetan (Ladak) names of plants; Maximowicz in his Prim. Floræ amurensis gives 5 or 6 Manchurian names. In Zigra's Dendrology of Russia we meet with some Mongol, Tartar, and Kalmuk names. Some names of common plants in the languages of the Kalmuks and the Kirghizes will be found in Professor Galstunsky's Russian-Kalmuk Dictionary, 1860, and in Ilminsky's Kirghiz Dictionary, 1861.

CHAPTER II.

ON THE SCIENTIFIC DETERMINATION OF THE PLANTS MENTIONED IN CHINESE WORKS.

We now come to the most important, but at the same time most difficult part of our researches. In order that Western science may profit by a study of Chinese botanical works it is necessary not only to understand the Chinese written characters but also to recognize the plants described and to ascertain their scientific names. Our knowledge of the Botany of China is still very defective, more so indeed, it may be safely said, than that of the Floræ of the interior of Africa and Australia. Those regions of the Empire especially to which the majority of plants described in Chinese books refer, have never been trodden by the foot of a botanical collector. Thus the greater part of the vegetable productions detailed in Chinese works on Materia medica and Botany are unknown to Europeans. If the plants in question are not of common occurrence in the provinces visited by them, it is generally impossible to make anything of the vague descriptions given by Chinese botanists. Occasionally the drawings found in the previously mentioned native botanical works enable us to determine at least the genus or the order to which the plants belong. On the other hand, there may be in European collections plants from China, noticed also in Chinese works, but the native names have not been added to the scientific ones.

The only exact method of ascertaining the botanical names corresponding to Chinese denominations of plants is to obtain the plants *in naturâ* and to determine them. I may however observe that, although the common cultivated plants are known under the same Chinese names all over the Empire, many other plants, especially drugs, go under different local names in different provinces. Li Shi chen, the author of the Pen ts'ao kang mu, and other authors before him, have attempted to bring these synonyms together, but perhaps they have not always been correct in their identifications. In some instances also the same Chinese names are applied to distinct plants in different parts of China. It is therefore desirable that naturalists, who collect native names of plants, should always state in what part of China these names are used.

The first difficulty we encounter in identifying Chinese names of plants with the scientific appellations, is to secure trustworthy and competent natives to procure authentic specimens of the plants desired. The majority of drugs dealt with in Chinese treatises on Materia medica are yielded by wild growing mountain plants. The mountains of Chihli, Shantung, Shansi, Honan,[43] and Sz' ch'uan are especially famed for the medicinal herbs they produce.' These drugs (roots, leaves, flowers, fruits, etc.) for the most part reach the apothecary's shop cut in little pieces or pulverized. The apothecary knows nothing about the plants from which they are derived, nor concerning the place whence they have been gathered. Our specialists in Europe are also seldom able to determine these fragments. It is the same with many other Chinese articles of commerce furnished by plants. It is for instance generally impossible to get any reliable information regarding the trees yielding the numerous precious woods used all over China for making furniture. It is therefore necessary to apply directly to those who collect these drugs, or who fell the trees; and this is not an easy task.

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[43] I have been informed by missionaries, who had lived for some time in Honan, that 馬家橋 *Ma kia k'iao* in the prefecture of Wei hui fu in North Honan is a well-

The *ῥιζοτόμοι*, as the gatherers of medicinal plants were termed in ancient Greece, are chiefly represented in China by Buddhist priests. They live in the temples which abound in the mountains here, and are usually well acquainted with medicinal and other plants, and with their properties and applications for domestic purposes.

It is more easy to procure authentic specimens of the cultivated vegetation of China and to ascertain the Chinese names. Great caution must however be observed in accepting these names from the statements of the natives, and in order to arrive at a reliable determination, various competent sources of information on the same subject should always be consulted. European collectors of plants in China should never omit to inquire after the Chinese names of the plants they gather, and should try to have them written on their labels in Chinese characters. This is more easy to realise in China, where every beggar knows how to write, than European readers might imagine. Chinese names of plants, rendered only by European spelling, have little value, as errors will frequently creep in, and they are generally unintelligible even for sinologues.

Having obtained specimens of plants and ascertained their native names, the next step essential to the success of our investigations will be to have them determined by a competent botanist.

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known market for drugs. The drugs of the province of Chihli are exported from T'ien tsin. See Customs Report 1865, p. 28.

Although Europe abounds in botanists, the number of those from whom a reliable determination of Chinese plants may be expected is very limited. For not only a thorough knowledge of the Flora of Eastern Asia is required for this purpose, but the botanist who sets himself to examine plants, and especially exotic plants, must be in a position which will enable him to refer (for the purpose of identification and comparison of species) to some complete general herbaria in Europe. Now-a-days all botanists agree in the view that it is impossible to recognize and identify plants from descriptions only. To decide whether a particular plant is identical with another already described, it is necessary to compare it with an authentic specimen of the latter, and the author who proposes a new specific name, is bound to prove by direct examination of specimens of all the other species of the same genus or allied forms that the plant in question has really not been previously described

Prof. A. Bunge, in his Enum. plant. Chinæ bor. (1831) No. 238, took a kind of yellow *Jasmin*, which he first observed in Peking, to be identical with *Jasminum angulare* Vahl, a plant of the Cape of Good Hope (white flowers). He evidently relied only on an imperfect description of this plant. The Peking plant was subsequently proved by Lindley to be quite a distinct species, which then was named *Jasminum nudiflorum.*—Owing to the same want of other collections for comparison, Prof. Bunge described *Prunus trichocarpa* as a new species from Peking. But this plant had long before been described by Thunberg as *Pr. tomentosa* (from Japan).—The same author describes l. c. No. 81 the wild growing Jujube of Peking as a spinose variety of *Zizyphus vulgaris* Lam. One of our first botanical authorities in Europe, to whom I had sent specimens of this thorny shrub, very common in North-China, suggested to me that it was *Z. Lotus;* and the specimens of this shrub of Northern Africa kindly sent to me by him prove that there is indeed no difference between *Z. Lotus* and Bunge's *Z. vulgaris,* var. *spinosa.*—There are in the mountains West of Peking two species of *Syringa,* distinguishable at first sight by the size of their leaves. For a long time the botanists of the Botanical Gardens at St. Petersburg considered the large-leaved species to be *S. villosa* Vahl, first observed near Peking in the middle of the last century by d'Incarville, whilst the small-leaved one figures in the herbaria of St. Petersburg as *S. pubescens* Turcz. But from Prof. Decaisne's elaborate memoir on Ligustrum and Syringa I learn that *S. villosa* and *S. pubescens* are the same plant (the small-leaved), and that the other species (S. villosa of Russian botanists) is *S. Emodi* Wall., first observed in the Himalayas. Prof. Decaisne had of course seen authentic specimens of all these plants.

The works on systematic botany by Willdenow, Sprengel, Rœmer and Schultes and others, published previous to De Candolle's Prodromus, have little value so far as they attempt to decide botanical questions relating to China. At least the identification and changing of names of Loureiro's plants, as laid down by these authors, were certainly not based upon an inspection of Loureiro's herbarium.

Sufficient material for determining Chinese plants can only be found in the vast store houses of botanical collections in London, Paris, and St. Petersburg, which are especially rich in Eastern Asiatic plants. We also ought not to omit mentioning in this place the extensive herbarium of Dr. Hance in Whampoa, which as regards Chinese specimens may perhaps represent the most complete collection extant. Dr. Hance possesses also a great number of Indian, Japanese, and Siberian plants, and thus is well qualified to pronounce a competent judgment on questions referring to Chinese plants.

I need not say that the determination of plants requires great experience and attention. Even the most accomplished botanists are liable to err in their diagnoses. We must not forget that in the majority of cases (especially when they have to examine collections from distant countries) they rely entirely on dried materials, and these too, often imperfect specimens which must be deciphered like hieroglyphics of a dead language. Living plants show many characteristics, and very often striking ones, which cannot be recognized in dried specimens, or at any rate are liable to alteration, as, for instance, the colour of the flowers and other organs, their odour, etc. Probably many botanists who know a foreign plant only from herbaria, would often fail to recognize the same at first sight, when met in a living state.

In order to set down a complete and correct description of a plant it is desirable, but seldom practicable, to examine a considerable number of freshly gathered specimens. For this reason botanists in Europe always try to procure seeds of exotic plants for cultivation at home. But it is generally very difficult to get ripe seeds of rare wild growing plants, and the seeds are often spoiled before reaching their destination. Sometimes plants cultivated out of their native country show considerable aberrations from the ordinary wild type. Thus Planchon (D. C. Prod. XVII, p. 173) refuses to identify the *Celtis sinensis* Pers., introduced from China in the last century and cultivated since that time in South-Europe, with the *Celtis sinensis* collected by later authors in China. Compare also Prof. Decaisne's interesting investigations regarding the native country of the Sunflower and the Topinambour (Flore des Serres, XXIII.).

As in most cases botanists, who have to describe foreign plants, cannot refer to living specimens, a critical responsibility rests with the collector who observes the plants in their wild state, and who is often therefore in a position to decide easily dubious botanical questions by examining fresh specimens. In noting down the colours of the flowers and other organs, the odour, the general appearance and the stature of the plant, the conditions under which it grows, wild or cultivated, and in adding also in the memorandum, if possible, the native name,[44] the collector will essentially complete the descriptive details of the botanist. But in the generality of cases the collectors of plants pay little attention to these particulars; and then it is their fault and not that of the describer that the descriptions of foreign plants in systematic works are generally so unsatisfactory, and that often those characteristics, by which an observer of the living plant is struck at the first glance, are omitted. Let me illustrate these remarks by a few examples.

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[44] It is a good practice with some botanists who describe new plants, to preserve in the new generic or specific names the indigenous popular appellations, where known. Among Chinese names of plants introduced into our scientific botanical nomenclature, I may quote: *Magnolia Yulan*, *Pæonia Moutan*, *Diospyros Shitse*, *Nandina domestica*, *Nephelium Litchi* and *N. Longan* (Lung yen). This rule should be more generally adopted. But unfortunately the fashion now-a-days cherished among botanists is to transform names of savants or other persons (who frequently have had nothing to do with the plant dedicated to them) into botanical names, which are often dissonant and difficult to pronounce.

Stachys affinis Bge., known for a long time from North-China and Japan, is at once distinguished from other species by its fleshy root resembling somewhat a turreted shell. Maximowicz, to whom I sent complete specimens some years ago, was the first author to mention the characteristic roots of the plant. See his "Ad Floræ Asiæ orient. cogn. fragm." 1879, p. 46.

Pinus Bungeana, the beautiful white-barked Pine of Peking, was first described in 1847 by Zuçcarini, and has been cultivated in Europe since 1862. The most remarkable feature of this tree is its white bark, as if lime-washed. But this characteristic (not found on young trees) was for a long time unknown to European botanists and gardeners, and is still little known in Europe. Koch in his Dendrology III, p. 311 (published 1875) describes *P. Bungeana*, but does not mention the white bark.

Every foreigner, who visits Peking for the first time, is struck by the appearance of a certain large orange-coloured fruit sold in the streets. It is especially remarkable for the peculiar shape it presents. This fruit, called *Shi tz'* by the natives, is flattened and shows a more or less deep circular furrow which divides it into two stories. This is the *Diospyros Schi tse*, first described by Bunge, fifty years ago. But Bunge says only in describing the fruit: bacca maxima depressa, but does not mention the furrow. Since Bunge several authors have described *D. Schi tse* (Carrière, Decaisne, Hiern, Naudin), but none of them record the peculiar shape of the fruit; and the drawing given under the above name in Naudin's lately published memoir on the genus Diospyros shows a rather small globular fruit, like an apple, without the characteristic furrow, and represents, I believe, specimens cultivated in France, from seeds received from Peking. It seems however that the passage in Naudin's description of the fruit: bacca interdum ad mediam longitudinem quasi constricte coronata, alludes to the before-mentioned peculiarity of the cultivated Shi tz' of North-China, which is always aspermous. But the fruit cultivated in France as Shi tz' and represented by Naudin, exists here, although it is not common in Peking. It is not the fruit which Bunge saw and which he describes as bacca maxima depressa, asperma, since it always contains seeds, whilst the other is propagated by grafting only.

It seems to me that Bentham's Flora hongkongensis can be adduced as an example of short, popular and characteristic descriptions of plants, and, although the precision and correctness in exhibiting the details is due to the experience of the eminent author, a considerable portion of the information about Hongkong plants has certainly been furnished by the collectors, and chiefly by Dr. Hance, who for many years has zealously studied the Flora of the island.

Occasionally the most experienced botanists are liable to errors when working on dried imperfect material, whilst on the other hand persons even with a modest stock of botanical knowledge, but having the opportunity of observing plants in their native countries, are enabled to clear up dubious botanical questions and to correct incontestably statements of professional authors.

In Turczaninow's Enum. plant. Chinæ bor. (1837) and Maximowicz's Index Floræ pekin. (1859) we find two Peking species of *Catalpa* noticed, viz.: *C. syringæfolia* Turcz., and *C. Bungei* C. A. Mey. In D. C. Prodr. IX, 226 the first is considered a variety of the latter, distinguished by the form of the leaves. But whoever has seen these trees in Peking, where they are common, will be easily convinced that they constitute one species only, and that even a variety cannot be admitted, the leaves on the same tree being always very variable in shape, heart-shaped, entire, lobed or laciniated, triangular, sinuate, etc.

The same may be said of *Sesamum indicum* L., much cultivated in the Peking plain. In D. C. Prodr. IX, 250 three varieties of this cultivated plant are distinguished, according to the form of the leaves (grandidentatum, subdentatum, subindivisum). But this distinction is also untenable. Here at Peking at least we frequently see on the same plant entire, lobate, or trisected leaves. I have sent such specimens to St. Petersburg.

The Chinese in the Northern provinces cultivate a beautiful *yellow Rose*, very prickly, with small pinnated leaves. I have been told that it occurs in a wild state in the mountains of North-China and Southern Mongolia. [illegible] Rose figures in Bunge's

Enum. Chin. bor. as *Rosa pimpinellifolia* L., varietas floribus majusculis sulphureis. The specimens of the same plant in the Herbarium of the Botanical Gardens at St. Petersburg (some of them sent by myself) have been determined by Crépin as *R. pimpinellifolia*, var. *densiflora*, and in his Monography of Roses (Bull. Soc. Bot. Belg. 1874, 75) he mentions *R. pimpinellifolia* as found at Peking, without noticing however its yellow flowers (on dried specimens the flowers are white). Crépin, as well as all previous authors who speak of *R. pimpinellifolia*, attribute to this Rose, which has a large area of geographical distribution, rose-coloured or white flowers. Last year I forwarded some specimens of our yellow Peking Rose—taken from the same shrub in my garden as those sent to St. Petersburg—to an eminent French botanist, who informed me that it differs widely from *R. pimpinellifolia* of the environs of Paris, but seems to be closely allied to *Rosa xanthina* Lindl., and is perhaps the same.

Five species of *Orobanche* have been noticed by different authors as occurring at Peking, viz.: two with white flowers: *O. macrolepis* Turcz., and *O. pycnostachya* Hce.—three with blue flowers: *O. ammophila* C. A. Mey., *O. albolanata* Steud. (O. canescens Bge.); *O. ombrocharis* Hce.—Mr. Maximowicz, who some years ago was kind enough to determine for me the species of Orobanche I had gathered in the Peking mountains, and who on that occasion examined all the species of this genus from Peking found in the herbaria of St. Petersburg—suggested to me by letter that the characteristics on which these species are founded (lower lip of the corolla entire or bilobate; anthers barbate or glabrous) are fallacious and inconstant, and that from dried specimens alone it is impossible to decide whether the lower lip is bilobed or not. As these plants are succulent it is difficult to press them properly, and the flowers shrivel. Maximowicz, who seems disposed to think that the five described species of Orobanche are to be reduced to two species, requested me to examine the flowers of the living plants. I have not yet had an opportunity of doing so, as these plants grow in the mountains; and I was not able last year to visit the regions where they are found at the proper season. But from my former experience on the subject I have no doubt that Maximowicz is right in his supposition, and my own impression has always been that the genus Orobanche in the Pekin Flora is represented by two species only: one scentless blue-flowered, and one fragrant with white flowers and yellow filaments and anthers.

In 1866 Dr. Hance described in the Ann. sc. nat. Advers. p. 18 (see also Journ. of Botany 1869, 295) *Sambucus Williamsii* as a new species gathered in the neighbourhood of Peking by Dr. Wells Williams. The inflorescence arranged in a lax compound corymbe is given as characteristic. I myself gathered a number of specimens of a Sambucus growing at the same place. Maximowicz declared it to be *S. racemosa* L., which is frequent in the Peking plain and in the mountains. See also Bge. Enum. Chin. bor. No. 193. The inflorescence of this species (generally described as an ovoid panicle) varies in shape at Peking. On younger plants (rarely seen in flower and distinguished by larger leaflets) the panicle does not develop so well as on old specimens (small trees). Although I have not seen Dr. Williams' original specimen, I have little doubt that it was taken from a young plant of *S. racemosa*. Dr. Hance has hardly examined a great number of specimens of his *S. Williamsii*.

A great obstacle in the way of utilizing the results of modern botanical research is the tendency observable among the majority of botanists of our days to multiply unreasonably the genera and species. They thus create a mass of new names, the greater part of which, being rejected by more considerate authors, figure afterwards as useless synonyms in works of descriptive botany, and occasion a kind of scientific confusion of names which leads to erroneous inferences. Some botanists even go so far as to propose to change (without any botanical reason) names, consecrated by long use, in favour of new ones, which seem to them more appropriate. See e. g. St. Lager's Réforme de la Nomenclature Botanique. 1880.

It is in vain, that we ask what benefit can accrue to science from the extravagant subtilization and differentiation now prevailing in systematic botany, by which the study of that science is rendered so complicated. Nobody will, I think, now-a-days attempt to maintain the view that it lay in the plan of nature, in producing living beings, to create them according to a scheme resembling the so called natural systems by which our naturalists are guided. These ingenious systems answer their purposes only in a general way. In many instances we do not find in living nature precisely defined and exactly divided Orders, Genera, and Species; but we observe more frequently gradual transitions by móre or less numerous intermediaries (which often have become extinct now) from one form to another. It is even not possible to separate precisely the vegetable from the animal kingdom. These facts render the application of our systems of classification to natural objects often difficult.

When Linnæus first attempted to group plants in a rational way, according to certain characters they possessed in common, and when he first proposed the generic and specific appellations, one of his principal objects in view was apparently to establish a reasonable rule for nomenclature. His ingenious plan was unanimously adopted, but it is to be regretted that the principles now followed in laying down the limits of genera and species widely diverge from the good sense displayed in this regard by old Linnæus. A system of classification answering all purposes of precise distinction is a desideratum which will never be attained. Although it seems to be of primary importance to have a definite idea of what is to be understood by Genus, Species, and Variety, these terms have never been satisfactorily explained, and they have really not a very exact meaning. This question is entirely left to the judgment of the particular authors, and every botanist has his own opinion on the matter and follows generally a system of his own. Thus we find in systematic botany the greatest incongruities in the matter of distinctive characters required to justify the establishing of a new genus or species.

From a practical point of view, and for the sake of clearness, it seems to me more reasonable that the range of genus and species should be less limited, *i. e.* to admit less genera and more species; and on the other hand, less species and more varieties. If such a rule were adopted, the botanical names would more clearly indicate the affinities of plants than the multitude of new generic and specific appellations, separated from the names of the original genus and species—separations which are often founded on characteristics of little value. Take the genus *Begonia* of Linnæus as an example. It has been divided by Klotzch into 41 new genera. Bentham and Hooker, in their Genera Plant. I, 842, reject these altogether, admitting only the genus Begonia.

The number of names of plants met now-a-days in botanical works is enormous; and it can hardly be supposed that there is a single botanist who would be able to retain in his memory even the generally admitted generic names, to say nothing of the synonyms.

I know well that in entering a protest against the multiplication of generic and specific names in botany, I tread on delicate ground. I would never have dared, with my modest knowledge and experience in botanical matters, to profess an opinion so little coinciding with the ideas of the majority of botanists, had not my judgment been principally guided by the experiences laid down in Bentham and Hooker's Genera Plantarum. The eminent authors of this work reject about one-half of the hitherto proposed genera (or assign to them the rank of subgenera at the most). As regards the hitherto described species, they seem to reduce them in a much larger proportion and throw together large heaps of useless synonyms. Thus they reduce the species of *Roses* from 250 enumerated species to 30; those of *Rubus* from 500 to 100; of *Cinnamomum* from 50 to 10; of *Nasturtium* from 80 to 20; of *Gossypium* from 13 to 3—4, etc. Other competent botanists, having made experiments in cultivating the various species of *Capsicum*, described in systematic works, have come to the conclusion that all cultivated Capsica are nothing but varieties of *C. annuum* L.

I would not like to be credited, however, with advocating a superficial examination of plants, and a generalization in the descriptive details; nor have I any fault to find with a minute differentiation and dividing in systematic botany, supposing these characters apply to subgenera and varieties, and are not intended to raise plants unreasonably to generic or specific rank. It cannot be denied that a careful distinction of the characters, and numerous divisions and subdivisions in systematic works essentially facilitate the determination of plants. But an extravagant nomenclature cannot but confuse the notions which systematic botany ought to exhibit with respect to the relative affinities of plants.

I am inclined to believe that in the majority of instances the irrelevant naming of new species and genera arises from vanity in some writers, desirous of affixing their names to new scientific appellations. For this reason botanists are often in a great hurry to establish a new species, based perhaps upon the examination of a single specimen or other inadequate material, as even in case of this new name being subsequently rejected, it remains at least preserved among the synonyms. I do not think that I am exaggerating in asserting that more than one-half of the new specific names now-a-days proposed may be considered as useless synonymic ballast. Would it not be better in describing a supposed new plant to give its more prominent characters, placing it temporarily as a variety near the species to which it is most nearly allied, and to wait for further material? But there is less merit in discovering a variety than a new species!

It is really astonishing to read what characteristics are sometimes adduced as foundations for a new species. Carrière (Revue Hort. 1860, p. 30) describes *Celtis Davidiana* as a new species from Peking. Although he had not seen either the flowers or the fruit, but only the leaves, he declares it "une espèce très distincte par ses feuilles." Planchon (D. C. Prodr. XVII, p. 172) maintains this species, but considers it as imperfectly known. He states however: A *C. sinensi* differt foliis basi minus obtusis nunquam subcordatis, reticulo nervulorum laxo et vix conspicuo nec densiusculo et prominente, colore læte viridi nec exsiccatione rufidulo —a *C. Bungeana* (also described as a Peking species) foliis saturatius viridibus nec exsiccatione glaucescentibus.

The authors, in founding a new species upon the colour of the dried leaves only, seem to be ignorant of the fact that the same leaves, according to the method of drying them (quickly or slowly), often assume very different colours. Old leaves are much darker than young leaves of the same tree. Sometimes, as in the case of Sophora japonica, the leaves of young specimens are quite different in shape from those of old trees. Maximowicz, who has had ample opportunity of elucidating this question with the help of the Peking specimens of Celtis in the herbaria of St. Petersburg, refers them all to *C. sinensis* Pers. (see his Decas. XIII, p. 27), and identifies the latter also with Thunberg's *C. orientalis* of Japan

(*C. japonica* Planch.). My own experience agrees with Maximowicz's view. I am not able to distinguish more than one species of *Celtis* in the neighbourhood of Peking, where the tree is frequently seen in the plain and in the mountains. Its leaves vary in shape on the same tree, being generally ovate, oblong, but sometimes also cordate. They are either perfectly smooth or rough to the touch (especially on young trees). I have sent specimens with variously shaped leaves on the same branch to the Muséum d'Histoire naturelle of Paris. Its drupes are always black when ripe. A specimen of the Peking tree sent in 1869 to Dr. Hance was determined as *C. sinensis*. The latter is mentioned also in the Flora hongkongensis.

Carrière describes also (Revue Hort. 1867, p. 340) two new Poplars from China, again only from a few leaves he had received, viz.: *Populus tomentosa* and *P. Simonii*, although it is known that the leaves of some Poplars are very liable to variation. Maximowicz thinks (Fragm. Floræ Asiæ orient. p. 49) that the first is the common *Populus alba*.

In another instance Carrière does not hesitate to apply the new name of *Ailantus flavescens* to a young plant received from China and cultivated in Paris (Revue Hort. 1865, p 366). But when ten years later the tree first flowered, it turned out to be *Cedrela sinensis* Adr. Juss., belonging to quite a different order (ibid. 1875, p. 86).

The same French botanist (ibid. 1867, p. 451; 1868, p. 10; 1870, p. 17) has named four (supposed) new species of *Ampelopsis* from North-China, viz.: *A. palmiloba*, *A. dissecta*, *A. tuberosa*, and *A. napiformis*. He was evidently not aware that the Flora of North-China had been previously studied by Dr. Bunge, who described the same plants under other good specific names; and thus Carrière produced four useless new names.

Botanists in Europe, when receiving cultivated specimens from foreign countries, generally have no scruples in describing them as new species, without taking into consideration the variations which cultivation may have brought about in these plants. Thus *Gossypium Nanking*. Meyen, *Nicotiana chinensis* Fisch. (D. C. Prodr. XIII, 1, 550), and *Avena chinensis* Steudel (Gram. 231), have been put forward as new species cultivated in China, and not known from elsewhere. But it is a well-established fact that Cotton was unknown in China before the 6th century, and that its cultivation in this country began only in the 11th century. Tobacco, introduced from Manila in the 17th century, was previously unknown in China. *Acena chinensis*, considered by some botanists a variety of our European *A. nuda*, is even not distinguishable from the latter species.

This unhappy tendency of botanists to discover new species even among common cultivated plants renders the interesting researches into the geographical distribution of plants and the history of cultivated species very difficult, and leads to erroneous conclusions. It seems to me of greater interest to prove that the range of a known European plant extends as far as Eastern Asia, than to discover there one or more new species of the same genus.

Artemisia indica L., *A. igniaria* Maxim., and *A. lavandulaefolia* D. C. have been described as distinct Chinese species. Maximowicz has shown (Decas. XI, 536) that they are all identical with the common European *A. vulgaris* L., or slight varieties of it.

Galium pauciflorum Bge. (Peking), *G. sororium* Hance, and *G. strigosum* Thbg. (Japan), are according to the same author (D. XVI, 259) all identical with our common *G. Aparine* L.

In the same way Maximowicz considers *Ulmus pumila* Pall. (Eastern Siberia, Mongolia, North-China) as a variety of our common *Ulmus campestris* L. Planchon's *U. Davidiana* from North-China seems also to belong to the same species.

The multiplication of synonyms, increasing every year, and the conflict of opinion of authors as to the place and rank to be assigned to a plant in the system, have become a serious evil and inconvenience to all who have to deal with modern botany. It is impossible to obtain any uniformity of view among authors in this regard. Owing to this unsettled state of nomenclature in botanical science, the original design aimed at in giving a name to a plant, *i. e.* to distinguish it at once from other plants, becomes quite ineffective. Sometimes it may be more intelligible to quote a popular name of a plant than a scientific one.

Collectors, who may send the same plants for determination to several competent botanists, will be struck when comparing the lists of the determined species, by the disagreement between the botanists in many instances, which it is sometimes impossible to account for. What does this prove? Certainly not the inadequacy of the botanists who determine the plants, but rather the difficulty of drawing in every case a clear line of distinction between two or several species. In order to convince himself how widely the opinions of different authors diverge with respect to the same plant, its place in the system and its specific name, the reader has only to compare the various monographs on Roses, Allium, Iris, Diospyros, etc. published during the last few years, —or he may open any volume or page of De Candolle's Prodromus and examine the host of synonyms found there, and the errors which botanists impute to each other.

It is a remarkable fact that those botanists who dispose of vast materials, and who in their investigations can refer to a great number of species of the same genus, as for instance the authors of the Genera Plantarum in London, and the botanists of St. Petersburg, are generally inclined to generalize and, while admitting a wide range of specific variations, to restrict the number of species; for they are often called upon to compare a long series of intermediate forms standing between two seemingly quite distinct species, but connected by transitions, and they then have the alternative of combining the two species and the intermediaries into one species with several varieties, or of creating a great number of new specific names. The sound and practical view entertained in this regard by eminent and experienced authors should be more generally adopted and appreciated than is the case. The question is not to recognize a "scientific truth," but merely to assent to a "practical rule" in the way of generalizing and simplifying the intricate state of botanical nomenclature, which will render systematic botany more useful and accessible for reference.

After this digression from the main subject of our investigations let us now show what has been already done in the way of scientific determination of the plants mentioned in Chinese books.

As has been detailed in a lately published paper on the early history of botanical discoveries in China, it is to the Jesuit missionaries that we are indebted for the earliest notices of the more conspicuous plants of China and their native names; but their early publications on botanical matters contain merely popular descriptions and accounts of Chinese plants, and do not deal with scientific names. The first scientific work treating of the Flora of China which attempts to give the Chinese equivalents for the botanical names of some Chinese plants, is Loureiro's *Flora cochinchinensis*, 1788. I should also mention in this place Osbeck's *Voyage to China and the East-Indies*, published about thirty years earlier than the Flora cochin. Osbeck, in enumerating and describing 244 plants which he had collected near Canton and which had been determined by Linnæus, occasionally gives the transliterated Chinese names, but these are generally sadly perverted. As regards the Chinese names of plants found in Loureiro's book, they are for the greater part correct, and have subsequently served as a basis for investigations of the same kind.

In 1822 Morrison gave in his *English and Chinese Dictionary*, p. 174, under the head of "Flowers," a list of plants which flower in each month of the year in Canton, containing 148 native and scientific names, for which Morrison states he was indebted to J. Reeves. J. Russel Reeves, who died in 1877, aged 73 years, resided for a long time in Canton. He was in the East-India Company's service, and seems to have arrived in China about 1815. Reeves was an able naturalist and made valuable botanical collections. He published an account of some of the articles of the Materia medica employed by the Chinese. 1826.

The 14th chapter of Bridgman's *Chinese Chrestomathy* (Macao 1841) deals with Chinese Botany. This as well as the two other chapters on Natural History (13 and 15, Mineralogy and Zoology) were prepared by Dr. S. Wells Williams, the well-known sinologue, [illegible]w Professor at New Haven. We find there 445 names of Chinese [illegible]ts, with the corresponding popular English or scientific appel-[illegible] A similar list, comprising 353 names of Chinese plants, is [illegible] Dr. Williams' *English and Chinese Vocabulary* in the [illegible]cao 1844, under the word "Flower." It seems that these identifications have partly been derived from Loureiro's Flora cochinchinensis.

In the same year Dr. Williams published the first edition of his valuable *Chinese Commercial Guide*, the 5th and last edition of which appeared in 1863. In the chapter devoted to Chinese Articles of Export a good many scientific names of Chinese economic plants are found. The first attempt to examine the Chinese articles of export, or to bring together the scattered notices of them, had previously been made by Morrison. See "Chinese Repository" II. 1834, p. 447—472. The Report of the commercial delegates attached to the French Embassy of M. de Lagréné, 1844—46 (see *Etude pratique du Commerce d'Exportation en Chine*, par N. Rondot, 1848), was also made use of in the compilation of the later editions of Dr. Williams' Commercial Guide. But there is a great deal of original matter to be found in this book, and a sound critical sense displayed in utilizing the material furnished by previous authors.

An article published in Vol. VII. (1848) of the "Repertorium für Pharmacie und practische Chemie in Russland," p. 565 sq., by G. Gauger, and entitled *Chinesische Roharzneiwaaren*, may be considered as the first attempt to examine and describe Chinese drugs.[45] The 54 Chinese drugs described by Gauger were placed in his hands by Dr. P. Kirilov, who from 1832 to 1840 was attached as a physician to the Russian Ecclesiastical Mission at Peking, and whose name is connected with many new Peking plants transmitted to the Botanical Gardens of St. Petersburg, or to his friend N. Turczaninov. Gauger gives a detailed description of these drugs and of their physical properties, accompanied by drawings. The Chinese names are also added, but only in European spelling. As regards the botanical origin of these drugs, Gauger ventures in a few cases only some suggestions.

Dr. A. Tatarinov's *Catalogus Medicamentorum sinensium*, published at St. Petersburg in 1856, has a far higher value. Tatarinov resided in Peking from 1840 to 1850 as physician to the Russian Ecclesiastical Mission. During his long sojourn there he zealously applied himself to the study of the Flora of North-China. He forwarded large botanical collections to the Academy and the Botanical Gardens of St. Petersburg. The Chinese names of the plants are frequently given on the labels attached to his specimens. The Catalogus contains the Chinese names in Chinese characters, with their sounds expressed both in Russian and Latin spelling, of 480 drugs, for the greater part collected by Tatarinov in the Peking apothecaries' shops, and subsequently examined and determined by Prof. Horarinov of St. Petersburg. The scientific names of the Peking plants yielding these drugs were determined from direct examination of the plants collected by Tatarinov. As to the rest the authors seem to rely upon Loureiro and Grosier (Description de la Chine, 1819). All the drugs previously described by Gauger appear also in Tatarinov's list.

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[45] Andr. Cleyer, of whom I shall speak further on, published in 1682 a small treatise: *Medicamenta simplicia Chinensium*, enumerating 289 Chinese drugs with the Chinese names according to Portuguese orthography. But this pamphlet, translated by Father M. Boym from some Chinese treatise, and without annotations or identifications, has no scientific value.

Besides these collections Tatarinov presented to the Academy a beautiful set of botanical drawings representing 452 wild plants of the Peking Flora. These carefully coloured drawings, showing also the botanical details of each specimen, were executed from nature by a Chinese artist under the direction of Tatarinov, who also added the Chinese names in Chinese characters. Dried specimens of the same plants are to be found in the St. Petersburg herbaria.

In 1859 Tatarinov accompanied General Ignatiev as interpreter to Peking. He retired from service a long time ago, and now lives in Pensa, his native city.

I have seen a series of illustrations of Chinese plants similar to those in Tatarinov's collection in the possession of Mr. C. A. de Scatchkoff, who was Director of the Russian Meteorological Observatory in Peking from 1850 to 1857, and subsequently Russian Consul in Kuldja and Consul-General in Shanghai. Mr. Scatchkoff, who devoted himself to the investigation of Chinese Agriculture, and who has published many interesting papers on the subject, has also transmitted valuable botanical collections (comprising many cultivated plants) to St. Petersburg, where they have been determined. In the memoranda accompanying his specimens the Chinese names are generally given. He had engaged a Chinese artist to paint for him from nature the economic and ornamental plants cultivated at Peking. These valuable drawings give also the botanical details of each plant.

As has been stated in a previous chapter, the Japanese early adopted Chinese names for their medicinal, economic and other plants. But, although they have generally tried to apply a Chinese appellation of a plant to the same plant in Japan, it often happens that a plant in Japan bearing the same name as in China belongs to a different species; in some instances even quite dissimilar plants are designated by the same Chinese characters in the two countries.

The first attempt of a European to study the Flora of Japan was made by Andr. Cleyer, a German, who visited Yeddo in 1683 as envoy of the Dutch East-India Company, and resided in Nagasaki as chief supercargo of the Dutch factory till 1686. His letters on Japanese plants addressed to Dr. Mentzel have been published in the *Academiæ naturæ curiosorum Ephemerides*, 1686—1700. Cleyer's descriptions as well as the drawings appended have little value. The Japanese names are sadly perverted. Sprengel in his "Geschichte der Botanik," II. 68, gives the scientific names of as many of Cleyer's plants as it was possible to ascertain. The botanist Ch. H. Erndtel, in a letter dated Dresden 1716 and addressed to Jac. Breyn of Dantzig, refers to a collection of 1360 Japanese drawings of plants on paper of the Paper mulberry, which Mentzel had received from Cleyer and which he had subsequently presented to the Royal Library at Berlin. In 1878, when I visited Berlin, I saw these drawings and was much disappointed, for they were miserably and inaccurately executed, and have no scientific value. The paper used is of an inferior kind and not that manufactured from the bark of Broussonetia papyrifera, as Erndtel asserts.

But there is in the same Library another volume entitled *Cleyer's Flora japonica*, containing only 101 coloured drawings of Japanese plants, apparently painted from nature in Japan by Cleyer's order. These have more claim to botanical correctness. Cleyer has himself added some memoranda. The names are given in Japanese letters only. This volume was referred to Dr. Siebold, who in 1856 drew up an Index of the drawings and added the scientific botanical names.

A few years after Cleyer had left Japan, another German, an able explorer and botanist, arrived in that country and spent about two years there. Engelberth Kaempfer was born in 1651 at Lemgo (Lippe-Detmold). In 1683 he accompanied a Swedish Embassy to Persia as Secretary, but on its return he separated from it and proceeded to the Persian Gulf, where a Dutch fleet was stationed at that time. In 1685 he entered the service of the Dutch East-India Company as a surgeon, and arrived at Batavia in 1689. In the following year a Dutch squadron was sent out to Siam and Japan, and Kaempfer was of the party. On the 22nd September 1690 he reached Nagasaki. He had two opportunities of visiting Yeddo, performing the journey thither partly by the overland road, partly by sea. His first stay in Yeddo lasted from March 13 to April 5, 1691; the second from March 31 to April 29, 1692. He left Japan in the same year, returned to Europe in 1694, and died in 1716 in his native country. For further biographical details regarding Kaempfer see Rosny's "Variétés orientales," 1872, p. 98, where an interesting account of his life and his scientific works is found. Kaempfer was not only a skillful botanist, but an acute observer in general. He has connected his name imperishably with the history of botanical discoveries in Japan, and the accounts he noted down with respect to the Japanese Empire and other countries he visited will always stand as a model of accurate and judicious information and keen observation. In 1712 he brought out his *Amœnitates Exoticæ.* The second fasciculus (p. 466) contains an account of the plants from which paper is manufactured in Japan; in the third fasciculus (p. 605) a treatise on the Tea-shrub is found. Besides this the whole of the fifth fasciculus (p. 767—912) is devoted to the description of more than 500 species of Japanese plants, 31 of which are represented by excellent drawings. The Japanese names of the plants are always given, and Chinese names in Chinese characters are generally added. Although these characters are often wrongly or indistinctly printed, there is no difficulty in deciphering them. Kaempfer's botanical descriptions are generally faithful, in some instances much detailed.

The Amœnitates Exoticæ represents only a small portion of

Kaempfer's labours. After his death all his unpublished manuscripts as well as his herbarium, namely the plants collected in Japan and his drawings of Japanese plants, were purchased by Hans Sloane, the well-known collector and promoter of science, whose immense collections subsequently gave origin to the British Museum. In 1727 Kaempfer's valuable *History of Japan*, etc. was published in English, translated from his original (Dutch) manuscript. In 1791 Sir J. Banks edited a volume with the title: *Icones selectæ plantarum quas in Japonia collegit et delineavit E. Kaempfer, ex archetyp. in Museo Britannico asservatis.* It contains 59 plates.

After Kaempfer the first botanist to visit Japan was C. P. Thunberg, a Swede, born in 1743, died in 1822. He landed at Nagasaki in 1775, and on the 4th March of 1776 proceeded by the overland route to Yeddo, where he arrived on the 30th June. As the fruit of the botanical collections made during his stay in Japan he published in 1784 his *Flora japonica*, to which 39 drawings of Japanese plants are appended. Besides this he published in 1794 his *Icones Plantarum japonicarum*, 50 plates. I have seen in St. Petersburg another unpublished volume of drawings representing Japanese plants, executed from nature by order of Thunberg. As a scientific botanical nomenclature did not exist at the time when Kaempfer wrote, Thunberg tried to name those Japanese plants described in the Amœnitates exoticæ, which had not been previously determined and named by Linnæus, and to identify the native names mentioned by Kaempfer.

Much more was done in this respect by Dr. Siebold, the well-known and ardent explorer of Japan.—Ph. Fr. v. Siebold, a German, was born in 1796 in Würzburg. After having studied medicine and natural sciences he went to Holland, and entering the service of the Dutch East-India Company, set out for Batavia, where he arrived in 1822. The next year he was sent as a physician and naturalist to Japan. He lived several years in the Dutch Factory at Decima (Nagasaki). In 1826 he had an opportunity of visiting Yeddo. As the Japanese government suspected him of being in possession of a map of Japan, he was obliged to leave the country in 1830, and returned to Europe, where he employed himself for several years in publishing the results of his researches in Japan. In 1859 he went again to that country, where he lived till 1862. He died at Munich in 1866.—Siebold had forwarded one portion of his vast botanical collections accumulated in Japan to Prof. C. L. Blume in Java, who described some of these plants in the *Museum botanicum Lugduno-Batavorum*, 1849—51. H. Zollinger published a few years later an Index of Siebold's plants in the Java Herbarium (Buitenzorg). The greater part of his dried plants, however, had been transmitted by Siebold to the Museum of Leyden, and from these materials Prof. Miquel compiled his *Prolusio Floræ japonicæ*, 1865—67. Siebold himself, with the assistance of Prof. J. G. Zuccarini of Munich, had commenced much earlier to describe his Japanese botanical collections, but their publications were left in a fragmentary state. The most interesting of them is the *Flora japonica*, sive plantæ quas in Imperio Japonico collegit, descripsit, ex parte in ipsis locis pingendas curavit Dr. Ph. Fr. de Siebold, digessit Dr. Zuccarini, 1835—1844, 127 plates. Miquel attempted to continue this iconographical work and published, from 1868—1870, 23 additional plates.[46] The original drawings to which Siebold alludes on the title pages (about 600) have been purchased, together with a set of Siebold's dried Japanese plants, from his widow, by the Academy of St. Petersburg. The drawings form eight large volumes and are beautifully executed.

Siebold always tried to ascertain the Japanese names of the plants he gathered, and also noted down the Chinese characters applied in Japan to these plants. He was assisted in this task by native botanists, and we can, I think, assume that his identifications are quite reliable.

In 1852 J. Hoffmann and H. Schultes published a small pamphlet entitled: *Noms indigènes d'un choix de Plantes du Japon et de la Chine*, d'après les échantillons de l'herbier des Pays Bas. A new enlarged edition of this list was issued in 1864. It is an

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[46] I know only the 127 plates published by Siebold and Zuccarini. Franchet and Savatier, Enum. plant. Japon., Pref. XIII., state that in all 175 of these plates have been published, but in the second vol. p. 665 the authors assign to the Flora japonica 150 plates only.

Index of 6—700 plants of Japan (not of China, as might be inferred from the title), with the scientific botanical names and their equivalents in Japanese and in Chinese characters used in Japan to designate these plants. The authors of this list depend entirely upon Siebold's identifications, and, as has been already explained, it is a mistake on their part to assert that the Chinese characters they give are always referred by the natives to the same plants, both in Japan and in China.

The late Dan. Hanbury, well known for his numerous papers elucidating the history and the botanical origin of drugs, described in the "Pharmaceutical Journal," 1860—61, a collection of Chinese drugs, received from Shanghai, under the title of *Notes on Chinese Materia medica.* It was reprinted, after the author's death, in 1875, by J. Ince in D. Hanbury's Science Papers, p. 209—277. This pamphlet, illustrated by numerous wood-cuts, and giving the Chinese names in Chinese characters of 141 drugs, 83 of which are derived from the vegetable kingdom, is a very valuable contribution to our knowledge of Chinese Materia medica.

The same cannot be said with respect to the *Essai sur la Pharmacie et la Matière médicale des Chinois,* published in 1865 by a French Pharmacologist, O. Debeaux. He was attached to the French army in China in 1860, and had an opportunity of making botanical and other collections at several places in China. He is also the author of an article on the *Tinctorial Plants of China*, of a *Florula of Shanghai* (1875), a *Florula of Chefoo* (1877), and a *Florula of Tientsin* (1879). In all these papers we meet with a profusion of Chinese names of plants expressed in French spelling, but in the majority of cases they have no resemblance to the real ones. In my article: On the Study and Value of Chinese Botanical Works (1871), p. 47, 48, I have given some specimens of the information supplied by Debeaux with respect to Chinese Botany, and shall therefore not return to the subject.

Ten years ago (1871) Dr. Fr. Porter Smith brought out a book with the title *Contributions towards the Materia medica and Natural History of China,* which has often been quoted as a standard work in this department by people who cannot discern its real value, and who rely upon the assurance with which the author's information is presented. Dr. P. Smith's book indeed contains notices of a great number of Chinese drugs: Chinese and scientific names are always given and identified without any hesitation. One might believe that Chinese Pharmacology is as well known to Europeans as our own drugs are to us, and that Dr. P. Smith has left nothing to be done in this department. But if any one attempts to examine the matter thoroughly, he will soon be aware of the arbitrary character of his identifications and of the insufficiency of the knowledge we really possess with regard to Chinese drugs and economic plants. Thus, P. Smith's scientific denominations of Chinese plants, being drawn without any critical discernment from trustworthy and untrustworthy sources, have little value and render his book unreliable for any scientific purpose. It cannot however be denied that there are in it many interesting accounts, translated from Chinese works, relating to the medical virtues ascribed by the Chinese to their drugs.

Three years after P. Smith's book on Chinese Materia medica was published, a compilation of the same character appeared in French, with the title: *La Matière médicale chez les Chinois,* par le Dr. J. L. Soubeiran et M. Dabry de Thiersant, Consul de France en Chine, 1874. Although professing to be an original work, it is nothing but a compilation from P. Smith and Debeaux, made without criticism and without the Chinese characters of the native names. The best portion of the book is the able preface by Prof. Gubler.[47]

Such are the sources from which in Anglo-Chinese Dictionaries of later date, and also in the Reports on Trade at the Chinese

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[47] In a letter addressed to me by my late friend Dan. Hanbury, in Dec. 1873, I find the following passage:

“I recently forwarded to you Soubeiran and Dabry's work on Chin. Materia medica “—not on account of its scientific value, which is small indeed, but because it is proper “that you should have at hand all such books, good or bad. What can we say of such “statements as that the *Dragon's Blood* of the Chinese is derived from *Pterocarpus* “*Draco*, a tree only known to grow in Tropical America? Or that the *Valeriana* “*celtica* of the Styrian Alps grows in Szechuen and Shensi? or that *Santalum Freycinetianum*, a native of the Sandwich Islands, is found in Cochinchina? (p. 278, 160, “157), and many, many similar assertions for which no ‘pièces justificatives’ are “offered. It is impossible to speak with commendation of this work. It is largely “copied from P. Smith, whose errors it adopts and repeats.”

Treaty Ports, the scientific names for Chinese plants have been derived. The authors of these dictionaries generally rely upon P. Smith, and it is to be regretted that such names as for instance *Corchorus pyriformis*, *Cucumis longa*, given by him as scientific denominations, but unintelligible to botanists, have found their way from his Chinese Materia medica even into Dr. Williams' valuable dictionary (p. 861, 466). The latter gives generally, as far as Chinese Botany is concerned, the best information obtainable.

I should not close these remarks without cautioning the student of Chinese Botany against a French essay towards identifying Chinese names of plants, which was published ten years ago, and is the worst of its kind we have had the misfortune to notice. It is from the untrustworthy pen of P. Perny, and appeared as an appendix to his *Dictionnaire Français-Latin-Chinois*, 1872, a pretentious work beautifully printed, but which, I am sorry to say, puts sinologues to blush. As to the botanical part, the author says (General Preface and Preface to the Appendix on Natural History): "La synonymie que nous donnons ici est probablement la plus complète qui ait parue jusqu'à ce jour" (he should have added "et la plus erronée"). Indeed Perny identifies 2375 names of Chinese plants. He reproduces occasionally previously-made identifications (Hoffmann and Schultes, Williams), but the bulk of the "synonymie" is peculiar to the author's "researches." We may ask how he succeeded in bringing together such a mass of erroneous notions on the most common and generally known subjects, for it is not too much to say that it is difficult to meet with one correct statement in this essay. Even a student of Chinese unacquainted with Chinese Botany knows that 穀子 *ku tsz'* is not *Rice*, as Perny asserts (1993), but *Millet* (Setaria italica); that 小麥 *siao mai* is not *Rye* (2136), but *Wheat*; that 柏 *po* is not *Stillingia sebifera* (2201), but *Thuja*, or sometimes the *Cypress*; that 白楊 *po yang* is not the *Cypress* (852), but the *Poplar*; and that the *Water-melon* is not 絲瓜 *sz' kua* (which is a *Luffa*), and also not 酉瓜 (1744), but 西瓜 *si kua*.

CHAPTER III.

ALPHABETICAL LIST OF CHINESE WORKS AND AUTHORS.

Having given in a previous chapter a sketch of the principal Chinese treatises on Materia medica, Botany, Agriculture, etc., I now venture to offer a more complete enumeration, not only of such Chinese works as relate to that branch of literature, but of many other writings on Medicine, History, Geography, Philosophy, etc., which are frequently quoted in the Pen ts‘ao kang mu and other works of the same class.

Attention has already been drawn in a previous chapter to the great difficulty which a student of Chinese botanical writings has to contend with in ascertaining the time when the numerous works quoted in these writings were composed. We have to seek information about them in numerous Chinese bibliographical works not always readily accessible. It is therefore not surprising that European sinologues, in translating Chinese botanical articles, generally confine themselves to the expression "a Chinese author says," without attempting to give the date of the publications they quote. Even in the translations made from Chinese works on Natural History and Agriculture by the great sinologue Stan. Julien (see for instance his "Culture des Muriers en Chine") we seldom find any indication of time with respect to the quotations he translates.

I have endeavoured to elucidate this question as far as possible, and to ascertain from various sources the time to which the authors and works quoted in the *Pen ts‘ao kang mu* belong. My list will also be found to contain many other titles of Chinese works mentioned in the *Kuang kün fang pu*, the *Chi wu ming shi t‘u k‘ao*, the *T‘u shu tsi ch‘eng*, etc. It is hoped that it will afford some assistance to those who wish to study Chinese books on Natural History, and that it will prepare the reader for the better comprehension and appreciation of these writings.

Li Shi chen, the author of the Pen ts‘ao kang mu, assumes on the part of his readers a most extensive knowledge of Chinese literature, as in quoting works and authors he never deems it necessary to give the full title, or the full names, of the authors whose patronymic appellation he frequently omits, giving only the cognomen. Thus, for instance, by 從正 he means 張從正 *Chang Ts‘ung cheng* (an author of the Kin dynasty); by 機 he means 汪機 *Wang Ki* (Ming dynasty). It is known that every author, besides his patronymic (姓) and his cognomen (名), possesses also a literary appellation (字) and one or more pseudonyms (號). By all these names he is promiscuously designated, and their identity can only be proved by referring to his biography. Sometimes the name of an author is ambiguous. 大明 *Ta Ming* is an author's name as well as that of the Great Ming dynasty. 唐 *T‘ang* and 宋 *Sung* are patronymic denominations as well as names applied to Chinese dynasties. Thus the authors' names 唐愼微 *T‘ang Shen wei* and 宋王微 *Sung Wang wei* may either refer to *Shen wei*, an author of the T‘ang dynasty, or to *Wang wei*, an author of the Sung.—There were two Sung dynasties in China; one in the 5th century, the other from the 10th to the 13th century. There was also a state called Sung in China 500 or 600 years B. C. The Chinese, when indicating the time of an author, are accustomed to give the name of the dynasty, but in the case of the character Sung we are often left in doubt what time is meant.—It sometimes occurs also that authors of different dates bear the same name. There was a celebrated author 周密 *Chou Mi* in the 13th century. Authors of the same name wrote in the 4th and 10th centuries. 張華 *Chang Hua* was an author of the 3rd century. We find the same name among the authors of the Sung.

Before giving the results of my researches into Chinese literature, I may be allowed to notice briefly the general works from which information has been derived in order to ascertain the date of publication and other particulars regarding works and authors frequently quoted in Chinese writings on Natural History and Medicine.

Li Shi chen, in the first chapter of his Pen ts‘ao kang mu, puts at the head of his work a list of nearly 1000 works and authors from which he made extracts for the compilation of his Materia medica. They are enumerated under three heads and several subdivisions, viz.:

I. History of Chinese Materia medica. Review of 42 Chinese standard works of this class (already dealt with in the first chapter of these notes).

II. Medical Treatises.
  a. Titles of 84 works quoted in the ancient Pen ts'ao (or Treatises on Materia medica) previous to Li Shi chen.
  b. Additional list of 276 works first quoted by Li Shi chen.

III. Classical, historical, geographical, philosophical and other works.
  a. Titles of 150 works quoted in the ancient Pen ts'ao.
  b. Additional list of 440 works first quoted by Li Shi chen.

Under the second and third heads are comprised dry lists, arranged in no intelligible order, without any indication of period, giving nothing but the name of the author together with the title of the book. Sometimes the author's name is omitted. As there is no break between the name of the author and that of the work, it is in many cases difficult, even for a Chinese scholar, to separate them, or to decide whether the name of a book or an author is meant. There is no doubt that a large number of the works quoted in the Pen ts'ao kang mu were already lost when it was compiled, and that Li Shi chen's quotations were merely taken from previous works on Materia medica, especially, as he himself intimates, from the Pen ts'ao compiled in the 12th century by T'ang Shen wei. (See above Hist. Chin. Mat. med. No. 26.)

As regards the sources of my information on Chinese Bibliography, I would in the first place mention A. Wylie's admirable *Notes on Chinese Literature*, which without doubt occupies one of the most prominent places among European scientific publications on China. It is a matter of regret that the eminent author has generally confined himself in his investigations to such works as he knew from actual examination. Thus the greater part of the works and authors met with in the Pen ts'ao do not appear in Wylie's book. Besides this some biographical notices referring to Chinese authors have occasionally been derived from the late W. F. Mayers' well-known *Chinese Reader's Manual*. But for the bulk of Chinese authors and works appearing in the subsequent list, information has been drawn from Chinese bibliographical works, catalogues, collections of reprints, etc.

In the first place I consulted the 四庫全書總目 *Sz' k‘u ts‘üan shu tsung mu* (abbrev. S. K.), the great descriptive catalogue of the Imperial library, in 200 books, completed in 1790; and the abridgment of it, the 四庫全書簡明目錄 *Sz' k‘u ts‘üan shu kien ming mu lu* (abbrev. S. K. K.), in 20 books. I quote the latter, which is more accessible, in preference, and refer to the larger catalogue only for the works omitted in the abridged edition.—There is yet another abridgment of the larger catalogue, published at the same time, with the title 四庫全書目略 *Sz' k‘u ts‘üan shu mu lio.* It gives only the titles, the authors' names, and the date of publication of the works, but enumerates all works found in the large catalogue.

The well-known Encyclopædia 文獻通考 *Wen hien t‘ung k‘ao* (abbrev. W. H.), compiled in the beginning of the 14th century by *Ma Tuan lin*, contains 75 books (174—249), dealing with Bibliography, 經籍 *king tsi.* It furnishes interesting details on many ancient Chinese works now lost.

A supplement to it was published in 1586 under the title *Sü* (續) *Wen hien t‘ung k‘ao.* It includes 16 chapters (172—188) on Bibliography.

Some of the Dynastic Histories give in a separate section on Bibliography lists of works existing during the respective dynasties, but generally without explanatory details or indication of date of publication.

The earliest catalogue of this kind is found in the 前漢書 *Ts‘ien Han shu*, or History of the Former Han, book 30 藝文志 *i wen chi* (abbrev. HAN LIT.). It refers to the close of the first century B. C.

The next bibliographical compilation is found in the 隋書 *Sui shu*, History of the Sui (A.D. 589—618), books 32—35, 經籍. It enumerates the works published during this and the preceding dynasties (abbrev. SUI LIT.).

The 唐書 *T‘ang shu*, or History of the T‘ang (A.D. 618—907). There are several works of this name, the *Kiu* (old), and the *Sin* (new) T‘ang shu, dating from the 9th and 11th centuries. I always refer to the 唐書合鈔 *T'ang shu ho ch'ao*, a combination of both, published in 1733. The section on literature, *king tsi*, is comprised in books 72—75 (abbrev. T'ANG LIT.).

The 宋史 *Sung shi*, or History of the Sung (A.D. 960—1280). Section on literature, *i wen*, books 202-209). (Abbrev. SUNG LIT.).

The 明史 *Ming shi*, or History of the Ming (A.D. 1368—1644). Section on literature, *i wen*, books 96—99. (Abbrev. MING LIT.).

The Great Encyclopædia 太平御覽 *T'ai p'ing yü lan*, in 1000 books, published in 983, gives at the beginning a list of 1690 works from which quotations have been borrowed; but the time of publication is not indicated, nor are the titles arranged chronologically. (Abbrev. T. P.)

There is another Encyclopædia, 事言要元 *Shi yen yao yüan*, published in 1618, in which a very interesting bibliographical compilation is found. Between 2000 and 3000 works are noticed there. The list is chronologically arranged according to the dynastic periods. The names of the authors and occasionally other particulars are given. This list has been of great assistance to me in my investigations. (Abbrev. S. Y.)

Many of the minor treatises and articles quoted in the Pen ts'ao kang mu are found in the numerous 叢書 *Ts'ung shu*, or Collections of Reprints. A catalogue of a part of these repositories was drawn up in 1799 with the title 彙刻書目合編 *Hui k'o shu mu ho pien*, in 10 books, enumerating all the reprinted treatises contained in each ts'ung shu. Sometimes the author's name and date of publication are given, but generally we find only the dry titles of the treatises. (Abbrev. H. K.)

Much important bibliographical information has been drawn from the following four ts'ung shu:

The 漢魏叢書 *Han Wei ts'ung shu*, a collection of works written during the Han, Wei, Tsin, Liang, and Sui dynasties. The last edition reproduces nearly a hundred ancient literary works. See Wylie l. c. p. 209. (Abbrev. H. W.)

The 五百家小說 *Wu po kia siao shuo*, published during the Ming dynasty and reproducing 480 minor treatises by authors of the Han, Tsin, Liang, Wei, T'ang, Sung, and Ming dynasties. 48 books. (Abbrev. W. P.)

The 昭代叢書 *Chao tai ts'ung shu*. The first edition was published in 1697; the last much enlarged edition which I have consulted bears the date of 1834. It contains 560 more or less comprehensive articles by authors of the present dynasty. (Abbrev. C. T.)

The 函海 *Han hai*, a collection of literary productions of various times, 160 in all, published in 1783. See H. K. V. 56. (Abbrev. H. H.)

With respect to medical authors and treatises some information, not found elsewhere, has been derived from the 東醫寶鑑 *Tung i pao kien*, a general work on Medicine of Corean origin, already mentioned. The author places at the head of his work some short bibliographical notices. (Abbrev. T. I.)

To determine the time of the authors I also consulted several Chinese biographical dictionaries, especially the 尙友錄 *Shang yu lu*,—see Mayers' Chin. Read. Man. Pref. XVII. (abbrev. SH. Y.) —and the 史姓韻編 *Shi sing yün pien* (abbrev. SH. S.), published in 1784, in 64 books, a phonetically arranged list of the names of all persons whose biographies are found in the 24 histories, giving also the patronymics and surnames, literary appellations, etc.

Besides the abbreviations already given the following have been introduced into the subsequent bibliographical notes.

P. = *Pen ts'ao kang mu* (see p. 54). The figure indicates the page of the first book of the Pen ts'ao where the title of the respective work is found.

P. MAT. MED. = list of works on Materia medica in the same Pen ts'ao.

K. = *Kuang K'ün fang p'u* (see p. 70).

T. = *T'u shu tsi ch'eng* (see p. 71).

CH. = *Chi wu ming shi t'u k'ao* (see p. 72).

These are the sources from which the short bibliographical details furnished in the subsequent list of Chinese works and authors have been derived. The general works quoted above necessarily form the basis of all future investigation into Chinese literature and bibliography; but, as is generally the case with

Chinese books, reference to them is not easy. The reader will hardly imagine the trouble involved in bringing together the fragmentary information presented in the following pages. The bibliographical notices given there have no claim to completeness. The author's sole aim in compiling these notes was to ascertain the time when the works quoted in the Pen ts'ao kang mu and other Chinese books on Natural History, Materia medica and Medicine were published, without entering into details regarding the subjects dealt with in these treatises. It is generally impossible to say, from the mere title of a Chinese book, to what branch of literature it belongs; and even after an examination of the work itself it is often difficult to indicate in a few words its contents. This is especially the case with the writings classed in Chinese catalogues among the 雜家 and the 小說家 (miscellaneous writings and essayists in Wylie's Notes on Chin. literature), and frequently quoted in the Pen ts'ao. In many cases merely the title of the work and the date of publication are given in the following list. The authors are generally quoted only if their names appear in the quotations of the Pen ts'ao. The reader who would desire more information about these works and their authors is referred to the general works on Chinese literature which are invariably quoted.

Although I have apparently exhausted all the Chinese sources of information regarding Chinese literature obtainable in our days, I have not been able to ascertain the date of publication of all the treatises appearing in the list of the Pen ts'ao. As there are many misprints and inaccuracies in the editions of this work now extant, the titles and authors' names are occasionally misspelt. Some errors of this kind have been corrected; others may have escaped my attention. On the other hand, Li Shi chen, in quoting authors or works in his Materia medica, frequently abbreviates the title, or gives the author's pseudonym instead of his true name appearing in the list. I may be allowed to quote a few instances.

The treatise 飲膳正要 *Yin shan cheng yao* of the P. list med. 16 (No. 1096 of my list) is generally quoted in the text as 正要.

P. list 26 we read 沈括夢溪筆談 *Ch'en Kua's Meng k'i pi t'an* (see my list No. 510); but in the text of the Pen ts'ao the title of the same work often reads 沈存中筆談 (the literary name of the author was 存中).

Thus again the work 王梅溪集 (P. list 39; my list No. 1015), writings of *Wang Mei k'i*, is identical with the 王龜齡集, quoted P. XIV. (sub *mo li kua*). The same author is also styled 王十朋.

The Pen ts'ao list of medical works gives the titles of a host of collections of medical prescriptions (方), and alchemical receipts of various periods. The origin of many of these I have not been able to ascertain. But I think that no important Chinese treatise quoted in the Pen ts'ao has been omitted in my list, where the reader who in future may investigate the History of Chinese Medicine (a field of inquiry still untrodden by European scholars), will also find a considerable amount of information on the subject.

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1. 艾葉傳 *Ai ye ch'uan*. A treatise on the Artemisia leaf (used as moxa), by *Li Yen wen* (see No. 258). Ming dyn.—P. med. 16.

2. *An hui t'ung chi*. See p. 89.

3. 安南志畧 *An nan chi lio*. An account of Annam, by 黎崱 *Li T'se*, a native of that country. Close of the 13th cent.—Wylie 33.

4. 茶經 *Ch'a king*. A treatise on the Tea plant, by 陸羽 *Lu Yü*. Middle of the 8th cent.—P. 26.—Wylie 119.—Reprinted in the Ch. descript. part XXI. 36.

5. 茶錄 *Ch'a lu*. An account of the Tea plant, by *Ts'ai Siang* (see No. 428).—S. K. K. XII. 21.

6. 茶譜 *Ch'a pu*. A treatise on Tea, by 毛文錫 *Mao Wen si*. Sung dyn.—P. 28.—W. H. CCXVIII. 8, where the author is styled 燕文錫 *Yen Wen si*, a native of Shu (the present Sz' ch'uan).

7. A work with the same title, by 顧元慶 *Ku Yüan k'ing* of the Ming dyn. is mentioned in the H. K. III. 60.

8. 茶對 *Ch'a tui*. A work on Tea, by 蔡宗顏 *Ts'ai Tsung yen*. Sung dyn.—P. 28.—W. H. CCXVIII. 10.

9. 茶董補 *Ch'a tung pu*. Selection of extracts from ancient authors regarding Tea, by 陳繼 *Ch'en Ki*. First half of the 17th cent.—Wylie 119.

10. 戰國策 *Chan kuo ts‘e.* Story of the Contending States, 481—221 B.C. Author unknown. First commented upon by 高誘 *Kao Yu* of the Han dyn.—P. 23.—Han lit.—Wylie 25.

11. 產乳集驗方 *Ch‘an ju tsi yen fang.* Medical prescriptions, by 楊歸厚 *Yang Kui hou.*—P. med. 15.—T‘ang lit.

12. 產寶 *Ch‘an pao,* by 昝殷 *Tsan Yin.* T‘ang dyn.—P. med. 15.—W. H. CCII. 14.

13. 張協賦 *Chang Hie fu.* Madrigal of *Chang Hie* (?), who lived during the Tsin period.—P. 27.—Tsin shu 55.—Sui lit.

14. 張籍詩集 *Chang Tsi shi tsi.* Poetical works and memoirs of *Chang Tsi* of the T‘ang dyn.—P. 88.—S. K. K. XV. 15.

15. 張東海集 *Chang Tung hai tsi.* Collection of the writings of 張汝弼 *Chang Ju pi* of the Ming dyn.—P. 39.—S. Y.

16. 張宛邱集 *Chang Yüan k‘iu tsi,* by 張耒 *Chang Lei.* Sung dyn.—P. 39.—S. K. K. XV. 40.

17. 長慶集 *Ch‘ang k‘ing tsi,* by the famous poet 白居易 *Po Kü i,* A.D. 772—846. His liter. name was 樂天 *Lo t‘ien.*—P. 39.—W. H.—Mayers 546.

There is a work with the same title by 元稹 *Yüan Cheng,* A. D. 779—831.—P. 39.—S. K. K. XV. 18.—Mayers 961.

18. 長青山記 *Ch‘ang ts‘ing shan ki.* Record of the mountain Ch‘ang ts‘ing (in Kiang nan), by 羅逸 *Lo I* of the Ming dyn.—Reproduced in the Yü ming shan ki.

19. 長物志 *Ch‘ang wu chi.* Ming dyn.—S. K. K. XIII. 31.

20. 菖蒲傳 *Ch‘ang p‘u ch‘uan,* written also 昌陽傳 *Ch‘ang yang ch‘uan.* A Taoist tale by an unknown author, referring to the *ch‘ang p‘u* plant (Acorus).—Sung dyn. ?—P. med. 16.—Reprinted in the T. LXVIII.

21. 暢異物志 *Ch‘ang i wu chi,* by 陳祈 *Ch‘en K‘i.*—P. 30.—T‘ang lit.

22. *Chao tai ts‘ung shu.* See p. 136.

23. 朝野僉載 *Ch‘ao ye ts‘ien tsai,* by 張鷟 *Chang Sho* of the 8th cent.—P. 26.—Wylie 152.—Reprinted in the W. P.

24. *Che kiang t‘ung chi.* See p. 90.

25. 冊府元龜 *Ch‘e fu yüan kui.* Encyclopædia. Commencement of the 11th cent.—P. 31.—Wylie 147.

26. 眞誥 *Chen kao.* A Taoist work, by *T‘ao Hung king* (see p. 42).—P. 36.—Wylie 175.

27. 眞臘風土記 *Chen la feng t‘u ki.* A description of Cambodja, by 周達觀 *Chou Ta kuan,* a follower in the suite of an envoy from China to that country in the years A. D. 1295—97.—P. 30.—Wylie 47.

This has been translated into French by A. Rémusat (Nouv. Mél. asiat. I. 134).

28. 珍珠船 *Chen chu ch‘uan,* by 陳繼儒 *Ch‘en Ki ju.* Ming dyn.—T. CLXXXI. Frequently quoted.—S. K. CXXXII. 26.

29. *Chen chu nang.* See p. 48.

30. 甄異傳 *Chen i ch‘uan,* by 戴祚 *Tai Tsu* of the Tsin dyn.—P. 34.—Sui lit.

31. 枕中記 *Chen chung ki,* a Taoist work by *Sun Sz’ mo* (see p. 43). Commencement of the 7th cent.—P. med. 13.

There are several works bearing the same title. The P. med. 15 quotes one written by 葉天師 *Ye t‘ien shi* (not identified).—The W. H. CCXVII. 12 mentions a work Chen chung ki, author unknown, Sung dyn.

32. 針經 *Chen king.* A treatise on Acupuncture by *Huang fu Mi* (see No. 271).

33. 陳留耆舊傳 *Ch‘en liu k‘i kiu ch‘uan.* Han period.—Sui lit. Frequently quoted in the K. and in the T.—*Ch‘en liu* is an ancient name for the present K‘ai fung fu. See also No. 246.

34. 陳子昂集 *Ch‘en Tsz’ ang tsi.* Collection of the writings of *Ch‘en Tsz’ ang* of the T‘ang dyn.—P. 27.—W. H. CCXXXI. 5.

35. 沈氏農書 *Ch‘en shi nung shu.* A work on Agriculture, originally compiled by an author whose surname was *Ch‘en,* but published in the 17th cent. by 張履祥 *Chang Li siang.*—S. K. CII. 16.—Reprinted in the C. T.

35*a*. 岑參詩集 *Ch‘en Shen shi tsi.* Poems of *Ch‘en Shen.* T‘ang dyn.—P. 38.—S. Y.

36. 證治準繩 *Cheng chi chun sheng.* A collection of medical treatises. A. D. 1537.—Wylie 81.

37. 證治要訣 *Cheng chi yao küe*, by 戴元禮 *Tai Yüan li.* Yüan dyn.—P. med. 18.—Tung i pao kien 7.

38. *Cheng lei pen ts'ao.* See p. 47.

39. *Cheng shu.* See No. 1130.

40. *Cheng yao.* See No. 1096.

41. 誠齋集 *Ch'eng chai tsi*, by 楊萬里 *Yang Wan li.* Sung dyn.—P. 39.—S. K. K. XVI. 25.

42. 澄懷錄 *Ch'eng huai lu*, by *Chou Mi* (see No. 48). Yüan dyn.—S. K. CXXXI. 5.

43. 程氏遺書 *Ch'eng shi I shu.* Sung dyn.—P. 34.—W. H. CCX. 4.

44. *Ch'eng te fu chi.* See p. 88.

45. 直省志書 *Chi sheng chi shu.* Frequently quoted in the K. and in the T.—It is a topography of the districts of the Chinese empire. Ming, or perhaps commencement of the present dyn.

46. *Chi wu ming shi t'u k'ao.* See p. 72.

47. 志怪 *Chi kuai*, by 祖台之 *Tsu T'ai chi* of the Tsin dyn. See his biography, Tsin shu 75.—P. 34.—Sui lit.

There are several works with the same title, but by authors of different times, Sung dyn. (S. Y.), Ming dyn. (S. K. CXLIV. 10), T. P.

48. 志雅堂雜鈔 *Chi ya t'ang tsa ch'ao*, by 周密 *Chou Mi.* Latter half of the 13th cent. and beginning of the 14th.—P. 31.—S. K. CXXVII. 9.

49. 指南方 *Chi nan fang.* Medical prescriptions, by 史堪 *Shi K'an.* Sung dyn.—P. med. 20.—W. H. CCXXIII. 9.

50. *Chi wen shuo.* See No. 152.

51. 止齋集 *Chi chai tsi*, by 陳傅良 *Ch'en Fu liang.* Sung dyn.—P. 39.—S. K. K. XVI. 19.

52. 枝山前聞 *Chi shan ts'ien wen.* Ming dyn.—Reprinted in the W. P.

53. 紙譜 *Chi pu.* A treatise on Paper, by 蘇易簡 *Su I kien.* Close of the 10th cent.—P. 29.—S. K. K. XII. 18.

54. 質龜論 *Chi kui lun*, by *Chang Shi nan* (see No. 1100). Sung dyn.—P. 28.

55. 摭異記 *Chi i ki.* T'ang dyn.—Reprinted in the W. P.

56. 炙轂子 *Chi ku tsz'*, by 王叡 *Wang Jui.* T‘ang dyn.—P. 35.—S. Y. (T‘ang authors).

57. 卓異記 *Cho i ki.* Record of matters relating to the T‘ang dyn., by 陳翱 *Ch‘en Ao* of the T‘ang. Others give 李翱 *Li Ao* as the name of the author.—P. 34.—S. K. K. VI. 13.—Reprinted in the W. P.

58. 輟耕錄 *Cho keng lu.* Interesting miscellanies relating to the Mongol dynasty, published in 1366 by *T‘ao Kiu ch‘eng* (see No. 762).—P. 32.—Wylie 159.—Mayers 712.

59. 周易通卦驗 *Chou i t‘ung kua yen.* Researches into the symbols of the I king (classic).—P. 33.—Mentioned in the T. P. list (10th cent.).

60. *Chou li.* See p. 33.

61. 周必大集 *Chou Pi ta tsi.* Collection of the writings of Chou Pi ta, a celebrated scholar and functionary. A. D. 1126—1204.—P. 39.—Mayers 69.

62. 周顛仙傳 *Chou Tien sien ch‘uan.* Biography of a miraculous individual, who lived on the *Lü shan* at the close of the 14th cent. (see appendix 30). Written by the Ming Emperor *Hung wu* and engraved on a stone monument on that mountain.—P. 37.—S. K. CXLVII. 38.

63. 肘後百一方 *Chou hou po i fang.* Medical prescriptions, by *Ko Hung* (see above note 12 [8]).—P. med. 14.—Tung i pao kien 4.

A work with the same title was published by *T‘ao Hung king* (see p. 42).—T. XXI.

64. 仇池筆記 *Ch‘ou ch‘i pi ki*, by *Su Shi* (see No. 991).—P. 32.—S. K. K. XIII. 17.

65. 竹坡詩話 *Chu p‘o shi hua*, by 周紫芝 *Chou Tsz' chi*, a poet of the 12th cent.—Sh. Y.

66. 竹譜 *Chu pu.* Treatise on the Bamboo, by 戴凱之 *Tai K‘ai chi* of the Tsin dyn.—P. 29.—Quoted in the Ts‘i min yao shu (q. v.).—S. K. K. XII. 24.—Reproduced in the H. W. and in the T. CLXXXVI.

67. A work with the same title by a Buddhist priest 贊寧 *Tsan ning*, who also wrote a treatise on Bamboo sprouts. End of the 10th cent.—P. 29.—Reprinted in the T. CLXXXVII.

68. A work with the same title by 李衎 *Li K'an*, published A. D. 1299.—Wylie 100.—S. K. K. XII. 7.

69. A work with the same title by 陳鼎 *Ch'en Ting* of the present dyn.

70. 竹書紀年 *Chu shu ki nien*, termed also 汲冢竹書 *Ki chung chu shu*. Annals of the Bamboo books, which are said to have been found in the tomb of one of the Wei princes, A. D. 284. They begin with the reign of Huang Ti and extend to B. C. 299. Translated in Dr. Legge's Shu king.—Some plants are occasionally mentioned in this ancient work.—P. 29.—Wylie 19.

71. 諸證辨疑 *Chu cheng pien i*, by *Wu K'iu* (see No. 215).—P. med. 18.

72. 諸蕃雜志 *Chu fan tsa chi*. An account of foreign countries, by 趙汝适 *Chao Ju kuo*. Sung dyn.—S. K. K. VII. 28.

72a. *Chu kia pen ts'ao*. See p. 46.

73. 諸葛恪別傳 *Chu ko k'o pie ch'uan*. Narrative regarding *Chu ko k'o* of the kingdom of Wu (period of the three kingdoms).—Sui lit.—San kuo chi 64.

74. 朱子離騷辯證 *Chu tsz' Li Sao pien cheng*. Commentary on the Elegies of Ts'u (see No. 958), by *Chu Hi* (see No. 75).—P. 36.—W. H. CCXXX. 9.

75. 朱子大全 *Chu tsz' ta ts'üan*. Collection of the writings of the celebrated philosopher 朱熹 *Chu Hi*. A.D. 1130—1200.—P. 34.—Mayers 79.

76. 初學記 *Ch'u hio ki*, compiled by 徐堅 *Sü Kien*. Early part of the 8th cent.—P. 32.—S. K. K. XIV. 2.

77. 楮記室 *Ch'u ki shi*, by 潘塤 *P'an Hüan*. Ming dyn.—P. 37.—S. K. CXXXVIII. 6.

78. 樗繭譜 *Ch'u kien pu*. A treatise on wild silk (produced on Oaks, Ailantus, and other trees). Present dyn.—Reprinted in the Ch. descr. part XXII. 72.—See my article on Chinese silkworm trees, p. 6.

79. 傳家秘寶方 *Ch'uan kia pi pao fang*. Medical prescriptions, by 孫用和 *Sun Yung ho*, a celebrated physician of the 11th cent.—P. med. 17.—W. H. CCXXIII. 3.

80. 傳信方 *Ch'uan sin fang.* Medical prescriptions by 劉禹錫 *Liu Yü si.* A. D. 772—842.—P. med. 13.—Mayers 423.

81. 傳信適用方 *Ch'uan sin shih yung fang.* Medical prescriptions, by 吳彥夔 *Wu Yen k'ui.* Sung dyn.—P. med. 20.—S. K. K. X. 10.

82. 船窓夜話 *Ch'uan ch'uang ye hua,* by 顧文薦 *Ku Wen yen.* Sung dyn.—Reprinted in the W. P.

83. 莊子 *Chuang tsz',* a work on Taoist philosophy, by 莊周 *Chuang Chou.* 4th cent. B. C. A commentary on it was written by 郭象 *Kuo Siang* in the 4th cent. of our era.—P. 23.—Wylie 174.

84. 妝樓記 *Chuang lou ki.* T'ang dyn.—Reprinted in the W. P.

85. 春渚紀聞 *Ch'un chu ki wen,* by 何薳 *Ho Yüan.* Sung dyn.—P. 38.—H. K. II. 8.—Reprinted in the W. P.

86. 春秋繁露 *Ch'un ts'iu fun lu.* Additions to the Spring and Autumn Annals, by 董仲舒 *Tung Chung shu.* B.C. 156-86.—Wylie 129.—Reprinted in the H. W.

87. 春秋考異郵 *Ch'un ts'iu k'ao i yu.*—P. 33.—This work seems to date from the period of the Former Han.

88. 春秋題辭 *Chun ts'iu t'i ts'z'.* This is a section of the Ch'un ts'iu wei shu (see No. 90).—P. 33.

89. 春秋左傳注疏 *Ch'un ts'iu Tso ch'uan chu shu.* The Spring and Autumn Annals and the Tso narrative (Classics), commented upon by 杜預 *Tu Yü.* A. D. 222—284.—P. 23.—Wylie 5.—Mayers 684.

90. 春秋緯書 *Ch'un ts'iu wei shu.* Investigations of the Spring and Autumn Annals, written in the first cent. B. C.—S. Y. (works of the Ts'ien Han period). Frequently quoted in the T. with respect to plants.

91. 春秋元命苞 *Ch'un ts'iu yüan ming pao.* A section of the preceding.—P. 33.

92. 春秋運斗樞 *Ch'un ts'iu yün tou ch'u.* A section of No. 90.—P. 33.

93. *Chung chi shu.* See p. 76.

94. 種蘭訣 *Chung lan küe.* Directions for the cultivation of the *lan* flower (Cymbidium and other orchid plants), by 李奎 *Li K'ui.* Present dyn.—Wylie 121.

95. 種 樹 書 *Chung shu shu.* A work on the art of planting trees, by 兪宗本 *Yü Tsung pen.* Ming dyn.—P. 34.—H. K. II. 36.

About a work with the same title, dating from the T'ang period, see p. 79.

96. 種 芋 法 *Chung yü fa.* On the cultivation of the *yü* plant (*Caladium esculentum*), by *Huang Sheng ts'eng* (see No. 249). Reprinted in the T. LIII.

97. *Chung hua ku kin chu.* See No. 355.

98. *Chung nan chi.* See No. 542.

99. 中 藏 經 *Chung ts'ang king.* A medical treatise (on the viscera?), by *Hua T'o* (see note 12 [6]). 3rd cent.—P. med. 13.

100. 中 吳 紀 聞 *Chung wu ki wen*, by 龔 明 之 *Kung Ming chi.* Sung dyn.—S. K. K. VII. 24.

101. 法 華 經 *Fa hua king.* Chinese translation of the Lotus of the Good Law Sutras, made about A. D. 300 by a foreign priest.—P. 37.—Dr. Edkins' Chin. Buddhism, p. 108.

102. *Fan i ming i.* See p. 94.

103. 番 禺 雜 記 *Fan yü tsa ki.* Miscellaneous records regarding Fan yü (a district in Kuang chou fu), by 鄭 熊 *Cheng Hiung.* T'ang dyn.—W. H. CCV. 12.—S. Y.

The P. 25 quotes a work with the same title by an author with the surname 王 *Wang* This seems to belong to an earlier period.

104. 范 子 計 然 *Fan tsz' ki jan*, by 范 蠡 *Fan Li*, in the 5th cent. B. C.—P. 27.—W. H. CCXIII. 1.—Mayers 127.

105. 方 虛 谷 集 *Fung Hü ku tsi.* Collection of the writings of 方 回 *Fung Hui* (liter. name *Hü ku*). Sung dyn.—P. 39.—H. K. III. 49.—W. P.

106. 方 言 *Fung yen.* A comparative vocabulary of synonyms used in various districts, ascribed to 揚 雄 *Yang Hiung.* B. C. 53—A. D. 18. He held office as 執 戟 *chi ki* under the Emperor Cheng Ti, and is therefore sometimes styled *Yang chi ki.* He is also quoted under the name of 揚 子 *Yang tsz'.*—P. 28.—Han lit.—S. K. K. IV. 16.—Mayers 883.—The Fang yen is reprinted in the H. W.

107. 方 輿 勝 覽 *Fang yü sheng lan*, sometimes also written 方輿志 *Fung yü chi.* A geographical work by *Chu Mu* (see No. 721). Middle of the 13th cent.—P. 29.—S. K. K. VII. 2.

108. 放蠟法 *Fang la fa.* A treatise on the rearing of the wax insect and on the production of white insect wax. Present dyn.—Reprinted in the Ch. descr. part XIX. 60.

109. 放翁集 *Fang weng tsi*, by 陸游 *Lu Yu.* Sung dyn.—P. 30.—S. K. CXCVIII. 47.

110. 飛鴻亭集 *Fei Hung t‘ing tsi*, by 吳鵬 *Wu P‘eng.* Ming dyn.—P. 23.—S. K. CLXXVII. 7.

111. 霏雪錄 *Fei süe lu*, by 劉績 *Liu Tsi* (liter. name 孟熙 *Meng hi*). Ming dyn.—P. 33.—S. K. K. XIII. 27.

112. 風俗通 *Feng su t‘ung.* A collection of miscellaneous notices of ancient matters, by 應劭 *Ying Shao.* 2nd cent. A. D.—P. 32.—Wylie 131.—Reprinted in the H. W.

113. 風土記 *Feng t‘u ki*, by 周處 *Chou Ch‘u* of the Tsin dyn.—P. 32.—Sui lit.—Tsin shu 58, biography.

114. *Feng ts‘in yang lao shu.* See No. 741.

115. 蜂記 *Feng ki*, by *Wang Yüan chi* (see No. 1018).

115*a*. 浮槎山水記 *Fou ch‘a shan shui ki* (see Appendix 5), by *Ou yang Siu* (see No. 867). Reprinted in the Yu ming shan ki (No. 1101*a*).

116. 婦人方 *Fu jen fang.* Medical prescriptions against female complaints, by 郭稽中 *Kuo Ki chung*, a celebrated physician of the Sung period.—P. med. 21.—S. K. CIII. 50.

117. 婦人良方 *Fu jen liang fang*, by 陳自明 *Ch‘en Tsz’ ming.* About A. D. 1237.—P. med. 21.—Wylie 79.

118. 婦人良方補遺 *Fu jen liang fang pu i*, by 熊宗立 *Hiung Tsung li.* Ming dyn.—P. med. 21.—Tung i pao kien 7.

119. 扶南記 *Fu nan ki.* An account of Fu nan (Cochinchina), by 朱應 *Chu Ying.* 5th cent. A. D. or earlier.—P. 25.—The Sui lit. mentions a work 扶南異物志 *Fu nan i wu chi* by the same author.—A work *Fu nan ki*, but by another author, is quoted in the T. P.

120. 符瑞記 *Fu shui ki*, by 許善心 *Hü Shan sin* of the 6th cent.—P. 33.—Sui lit.

121. 負暄錄 *Fu hüan lu*, by 顧文薦 *Ku Wen tsien.* Sung dyn.—P. 36.—S. Y.

122. 服椒訣 *Fu tsiao küe*, by 吳猛 *Wu Meng*.—P. med. 16.—I am not aware whether this is the *Wu Meng* mentioned in Mayers' Chin. Read. Man. 868, who lived in the 4th cent.

123. 附子傳 *Fu tsz' ch'uan* is an account of the *fu tsz'* plant (Aconite) of 彰明 *Chang ming* (in Sz' ch'uăn), by 楊天惠 *Yang T'ien hui*. Sung dyn.—P. med. 16.—Reprinted in the Ch. descr. part XIV. 16.—T. CXXVII.

124. *Fu kien t'ung chi*. See p. 90.

125. 海槎餘錄 *Hai ch'a yü lu*, by 顧玠 *Ku Kie*. Ming dyn.—P. 31.—S. K. LXXVIII. 16.

126. 海錄碎事 *Hai lu sui shi*, by 葉廷珪 *Ye T'ing kui*. Sung dyn.—P. 37.—S. K. K. XIV. 4.

127. *Hai nei shi chou ki*. See No. 724.

128. 海山記 *Hai shan ki*. T'ang dyn. Author unknown.—Reprinted in the W. P.

129. 海上方 *Hai shang fang*. Medical prescriptions, by 溫隱居 *Wen Yin kü* (*Wen* the hermit), or properly 溫大明 *Wen Ta ming*. Sung dyn.—P. med. 19.—H. K. II. 36.

There is a work of the same name by *Sun Sz' mo* (see p. 43).—H. K. VI. 41.

130. 海上名方 *Hai shang ming fang*.—P. med. 20.—Sung lit.

131. 海上仙方 *Hai shang sien fang*, by *Wen Ta ming* (see No. 129.—P. med. 20.—H. K. II. 36.

132. 海上集驗方 *Hai shang tsi yen fang*. Medical prescriptions, by 崔元亮 *Ts'ui Yüan liang*. Beginning of the 9th cent.—Biogr. T'ang shu 216.—P. med. 14.—T'ang lit.

133. 海棠譜 *Hai t'ang pu*. A treatise on the *hai t'ang* (Pyrus spectabilis), by 沈立 *Ch'en Li*. Sung dyn.—Biogr. Sung shi 333.—P. 29.—Reprinted in the T. CCXCIX.

134. A treatise with the same title was compiled by 陳思 *Ch'en Sz'* in A. D. 1259.—Reprinted in the T. l. c.

135. *Hai wai i wu chi*. See p. 25.

136. *Hai yao pen ts'ao*. See p. 45.

137. *Han Wei ts'ung shu*. See p. 135.

138. 漢武故事 *Han Wu ku shi*. A record relating to the time of the Emperor Wu Ti, B.C. 140—86, by *Pan ku* (see No. 941).

Others believe that it was compiled during the T'ang period.—P. 24.—S. K. K. XIV. 30.

139. 漢武帝內傳 *Han Wu Ti nei ch'uan.* It records the visit of Si wang mu (the mother of the King of the West) to the Emperor Wu Ti of the Han. It is attributed to Pan ku (see No. 941), but was probably written in the 3rd cent.—P. 24.—Reprinted in the H. W.—Wylie 153.

140. 韓非子 *Han Fei tsz'.* The works of *Han Fei*, a philosopher of the 3rd cent. B. C.—Mayers 149.

141. 翰墨全書 *Han mo ts'üan shu*, by 劉應李 *Liu Ying li.* End of the 13th cent.—P. 36.—S. K. CXXXVII. 11.—S. Y. (Yüan authors).

142. 韓詩外傳 *Han shi wai ch'uan.* Anecdotes of the Shi king, by 韓嬰 *Han Ying*, who flourished between B. C. 178—156.—P. 35.—Reprinted in the H. W.—Legge's Shi king, Prol. 10.

143. 韓文公集 *Han wen kung tsi.* Collection of the writings of 韓愈 *Han Yü*, a philosopher and poet of the T'ang period, A. D. 768—824.—P. 38.—Mayers 158.

144. 翰苑叢記 *Han yüan ts'ung ki*, by 陸贄 *Lu Chi.* T'ang dyn.—P. 37.—S. K. K. XV. 13.

145. *Han hai.* See p. 136.

146. 寒食散方 *Han shi san fang.* Medical prescriptions.—P. med. 15.—Sui lit.

147. 好事集 *Hao shi tsi.* Sung dyn. (according to the T.).

148. 浩然齋日鈔 *Hao jan chai ji ch'ao*, by *Chou Mi* (see No. 48).—P. 31.—S. K. K. XX. 8.

149. 夏小正 *Hia siao cheng.* The Calendar of the Hia dynasty, B. C. 2205—1766. It is comprised in the Ta Tai Li ki, or Ritual Classic revised by the senior Tai, about the beginning of our era.—P. 33.—Wylie 5.—Frequently quoted in Chinese botanical works.

150. 遐觀賦 *Hia kuan fu*, by *Ko Hung* (see No. 579).—P. 36.

151. 暇日記 *Hia ji ki*, by 劉跂 *Liu K'i.* Sung dyn.—P. 38.—S. Y.—Reprinted in the W. P.

152. 洽聞記 *Hia wen ki*, a geographical work. T'ang period.—W. H. CCIV. 5.

The P. 38 quotes a work 治聞說 *Chi wen shuo.* I have some reason for believing that this is a misspelt title and that the above work is meant.

153. 香譜 *Hiang pu.* A treatise on fragrant substances, by *Ye T'ing kui* (see No. 126). Sung dyn.—P. 29.—Reprinted in the Ch. descr. part XVIII. 41 and T. CCCXV.

154. A treatise with the same title by 洪芻 *Hung Ch'u*, liter. name 駒父 *Kü fu.* Sung dyn.—P. 29.—S. K. K. XII. 20.—Reprinted in the Ch. l. c. 19 and T. l. c.

155. A treatise with the same title by 陳敬 *Ch'en King.* Sung dyn.—S. K. K. XII. 20.

156. 孝經援神契 *Hiao king yüan shen k'i.* This is a section of the 孝經緯 *Hiao king wei*, an investigation of the Hiao king, or Classic on Filial Piety. Written about our era.—P. 33.—S. Y.

157. 蟹譜 *Hie pu.* A treatise on Crabs, by 傅肱 *Fu Kung.* A. D. 1059.—P. 28.—Wylie 123.

158. 陷虜記 *Hien lu ki*, by 胡嶠 *Hu Kiao.* Sung dyn. This record refers to the Wu tai period.—P. 33.—Sung lit.

159. 軒轅本紀 *Hien Yüan pen ki* (Hien Yüan is one of the names of the Emperor Huang Ti, see p. 41), by 王瓘 *Wang Kuan.* T'ang dyn.—P. 24.—T'ang lit.

160. 行營雜記 *Hing ying tsa ki*, by 趙棨 *Chao Ts'ai.* Biography, Sung shi 417.—P. 33.

161. 學圃雜疏 *Hio pu tsa shu*, by *Wang Shi mou* (see No. 185). Ming dyn.—Ch. descr. part II. 148.

162. 河圖括地象 *Ho t'u kua ti siang.* This seems to be a production of the Han period. It is quoted in the Po wu chi (see No. 637).—P. 33.—Mayers 177.

163. 河圖玉版 *Ho t'u yü pan.* Seems to be likewise a production of the Han. It is quoted in the Po wu chi.—P. 33.—Mayers 177.

164. 河洛記 *Ho lo ki.* T'ang dyn.—W. H. CXCIII. 6.

165. *Ho nan t'ung chi.* See p. 89.

166. 何仲默集 *Ho Chung mo tsi.* Collection of the writings of *Ho Chung mo.* Ming dyn.—P. 39.—S. Y.

167. 何首烏傳 *Ho shou wu ch'uan*. A treatise on the medical virtues of the plant Ho shou wu (Polygonum multiflorum), by 李翱 *Li Ao*, of the 10th cent. Biogr., T'ang shu 211 —P. med. 15.—W. H. CCXVIII. 11.—Reprinted in the T. CLXXII.

168. 鶡冠子 *Ho Kuan tsz'*, a philosophical treatise of the 4th cent. B. C.—P. 34.—Han lit.—Wylie 126.

169. 鶴林玉露 *Ho lin yü lu*, by 羅大經 *Lo Ta king*. Sung dyn.—P. 31.—S. K. K. XIII. 23.

170. 後漢書 *Hou Han shu*. History of the After Han (A. D. 25—221), by 范曄 *Fan Ye*.—P. 23.—Wylie 13.

171. 後山談叢 *Hou shan t'an ts'ung*. Sung dyn.—S. K. K. XIV. 19.

172. 後魏書 *Hou Wei shu*. History of the After (Northern) Wei. A. D. 386—558.—P. 30.—Wylie 16.

173. 後燕錄 *Hou Yen lu*. Sung dyn.—T.

174. *Hu Pen ts'ao*. See p. 45.

175. *Hu kuang t'ung chi*. See p. 89.

176. *Hu nan t'ung chi*. See p. 90.

177. *Hu pei t'ung chi*. See p. 90.

178. 許眞君書 *Hü chen kün shu*.—Chen kün (the Immortalized) is an epithet applied to 許遜 *Hü Sun*, one of the Taoist patriarchs who lived in the 3rd cent.—P. 36.—Mayers 203.

179. 花鏡 *Hua king*. Mirror of Flowers, a botanical work by 陳淏子 *Ch'en Hao tsz'*, published in 1688.—Wylie 120.

180. 花經 *Hua king*. An enumeration of Chinese flowers, by 張翊 *Chang I*. Sung dyn.—Reprinted in the T. X.

181. 花曆 *Hua li*. Calendar of flowers, by 程羽文 *Ch'eng Yü wen*. 17th cent.—Reprinted in the T. XI.

182. 花譜 *Hua pu*. A treatise on flowers. Sung dyn.—W. H. CCXVIII. 13.

183. A work of the same name by 檀萃 *T'an Ts'ui*, pseudonym 游默齋 *Yu mo chai*. Present dyn.—Ch. descr. part VIII. 30.—T. CXIX. 1.—C. T.

184. 花史 *Hua shi*. A treatise on Flowers, by 吳彥匡 *Wu Yen k'uang*. Ming dyn.—S. K. CXVI. 40.

185. 花疏 *Hua shu*. A treatise on Garden flowers, by 王世懋 *Wang Shi mou*, died 1591. His biogr., Ming shi 287. He was

a younger brother of *Wang Shi chen* (see No. 207), and has left many treatises on plants. The Hua shu is reprinted in the T. XI.

186. 花小名 *Hua siao ming.* On popular names of plants. Author *Ch‘eng Yü wen* (see No. 181). 17th cent.—Reprinted in the T. XI.

187. 化書 *Hua shu*, written by 宋齊邱 *Sung Ts‘i k‘iu*, and completed by 譚峭 *T‘an Ts‘iao.* Wu tai period.—P. 27.—S. K. K. XIII. 4.—S. Y.

188. 華山記 *Hua shan ki.* Account of the Hua mountain (see Appendix 10).—P. 25.—W. H. CCVI. 1. Author unknown.

189. 華陀方 *Hua T‘o fang.* Medical prescriptions of the celebrated physician *Hua T‘o* (see note 12 [6]).—P. med. 13.—According to the Sui lit. these prescriptions were collected by his pupil *Wu P‘u* (see p. 40).

190. 華陽國志 *Hua yang kuo chi.* Ancient records relating to Pa and Shu (the present Sz' ch‘uan), by 常璩 *Ch‘ang K‘ü* of the Tsin dyn.—P. 31.—Reprinted in the H. W.—S. K. K. VI. 23.

191. 畫墁錄 *Hua man lu.* Sung dyn.—S. K. K. XIV. 20.

192. 淮南八公相鶴經 *Huai nan pa kung siang ho king.*—P. 28.—This work existed during the Liang period and is probably of earlier origin.—Sui lit.

193. 淮南子 *Huai nan tsz'.* A Taoist work, by 劉安 *Liu An*, prince of Huai nan, died 122 B. C.—P. 23.—Wylie 126.—Mayers 412.

194. 淮南王萬畢術 *Huai nan wang wan pi shu*, by *Liu An* (see No. 193).—P. 32.

195. 寰宇志 *Huan yü chi*, by *Lo Shi* (see p. 86). 10th cent.—S. Y.

196. 玄中記 *Hüan chung ki*, by 郭氏 *Kuo (shi).* 5th cent. or earlier.—P. 24.—S. Y.—Quoted in the Ts‘i min yao shu (q. v.).

197. 玄覽 *Hüan lan*, or 元覽 *Yüan lan.*—T‘ang lit.

198. 玄密 *Hüan mi*, by *Wang Ping* (see No. 204). 8th cent.

199. 玄明粉方 *Hüan ming fen fang.* Medical prescriptions.—P. med. 16.—Sung lit.

200. 玄晏春秋 *Hüan Yen ch‘un ts‘iu*, by *Huang fu Mi* (see No. 271) of the Tsin dyn.—S. Y.

201. 黃山志 *Huang shan chi.* Description of the Huang mountain (see Appendix 12). Present dyn. Notices of plants are frequently given in it. Tea is produced on the Huang shan.—S. K. LXXVI. 24.—Wylie 50.

202. 黃山谷集 *Huang Shan ku tsi.* Collection of the writings of 黃庭堅 *Huang T'ing kien*, pseudonym *Shan ku.* A. D. 1045—1105.—P. 38.—Mayers 226.

203. 黃帝書 *Huang Ti shu.* The book of the Emperor Huang Ti.—P. med. 15.—This work is mentioned in the W. H. CCXX. 14 (sub divination). It seems to be of an early date.

204. 黃帝素問 *Huang Ti Su wen.* A medical treatise attributed to the Emperor Huang Ti. It has been commented upon by 王冰 *Wang Ping*, a celebrated physician of the 8th cent.—P. med. 13.—Wylie 78.

205. 黃冶論 *Huang ye lun*, by 李德裕 *Li Te yü.* A. D. 787—849.—P. 29.—Mayers 370.

206. 皇極經世 *Huang ki king shi*, by *Shao Yung* (see No. 686). Sung dyn.—P. 34.—S. K. XI. 12.

207. 彙苑詳注 *Hui yüan siang chu*, by 王世貞 *Wang Shi chen*, liter. appellation 元美 *Yüan mei*, a native of T'ai ts'ang (Kiang su). Biogr., Ming shi 287.—He lived A. D. 1520—1594, and seems to be the same who wrote the preface to the Pen ts'ao kang mu (see p. 55).—S. K. CXXXVII. 39.—S. Y.

208. 會稽典錄 *Hui ki tien lu*, a work of the Tsin period.—S. Y.

209. 揮麈錄 *Hui chu lu*, by 王明清 *Wang Ming ts'ing.* Sung dyn.—P. 35 (where the author is erroneously styled *Wang Ts'ing ming*).—S. K. K. XIV. 23.

A work of the same name is noticed in the P. 36. Author 王性之 *Wang Sing chi* (not found elsewhere).—Another work with the same title is mentioned in the S. Y. Author *Yang Wan li* (see No. 41). Sung dyn.

210. 惠民和劑局方 *Hui min ho tsi kü fang.* Medical prescriptions. 10th cent.—P. med. 17.—S. K. K. X. 9.

211. 洪範五行傳 *Hung fan wu hing ch'uan*, by 劉向 *Liu Hiang.* B. C. 80—9.—P. 33.—Mayers 404.

212. 洪武正韻 *Hung Wu cheng yün.* A dictionary published during the period Hung Wu (1368—99).—P. 27.—Wylie 9.

213. 鴻烈解 *Hung lie kie,* by *Liu An* (see No. 193), second cent. B. C.—P. 23.—Wylie 126.—Reprinted in the H. W.

214. 活法機要 *Huo fa ki yao.*—P. med. 16 (without author's name).—There are two works with this title, both of the Mongol period. One of them was compiled by *Tung Yüan* (see p. 48), the other by *Chu Chen heng* (see p. 49).—H. K. VI. 30, 37.

215. 活人心統 *Huo jen sin t'ung,* by 吳球 *Wu K'iu.*—P. med. 18.—Mentioned in Ming lit.—This seems to be the author *Wu K'iu tsz'* of the Sung dyn. (see No. 556).

216. 活套 *Huo t'ao,* by *Tun K'i* (see p. 49). Yüan dyn.—P. med. 17.

217. 醫案 *I an.* A medical work by *Tan K'i* (see p. 49). Yüan dyn.—P. med. 17.

218. A work with the same title by *Pin hu* (see No. 910). Ming dyn.—P. med. 19.

219. 醫方選要 *I fang süan yao,* by 周文采 *Chou Wen ts'ai,* styled also 周良采 *Chou Liang ts'ai.* Ming dyn.—P. med. 18.—S. K. CV. 16.

220. 醫方大成 *I fang ta ch'eng,* by 孫允賢 *Sun Yün kien.* Yüan dyn.—P. med. 18.—S. K. CV. 14.

221. 醫學正傳 *I hio cheng ch'uan,* by 虞摶 *Yü T'uan.* Ming dyn.—P. med. 18.—S. K. CV. 20.

222. 醫學發明 *I hio fa ming,* by *Tung Yüan* (see p. 48). Yüan dyn.—P. med. 16.

223. 醫學綱目 *I hio kang mu.* Ming dyn.—P. med. 18.—Tung i pao kien 7.

224. 醫學啓源 *I hio k'i yüan,* by *Chang Kie ku* (see p. 48). Kin dyn.—P. med. 16.

225. 醫家大法 *I kia ta fa,* by *Wang Hai ts'ang* (see p. 48).—P. med. 16.—Tung i pao kien 6.

226. 醫鑑 *I kien.* Mirror of Medicine, by 龔信 *Kung Sin.*—P. med. 16.—Tung i pao kien 8.

227. 醫經小學 *I king siao hio,* by *Liu Shun* (see No. 1105). Yüan dyn.—P. med. 18.

228. 醫壘元戎 *I lei yüan jung*, by *Wang Hai ts‘ang* (see p. 48).—P. med. 16.—Wylie 79 states that the author wrote previous to the year 1241, but according to the P. and the Tung i pao kien he lived during the Mongol period.

229. 醫林集要 *I lin tsi yao.* A medical work by 王璽 *Wang Si*, prefect of T‘ai yüan fu, died 1488. Biogr., Ming shi 174.—P. med. 18.—Tung i pao kien 7.

230. 醫史 *I shi.* A history of Medicine, apparently by 李濂 *Li Lien.* Ming dyn.—P. med. 15.—S. K. CV. 19.

231. 醫說 *I shuo*, by 張杲 *Chang Kao.* Sung dyn.—P. med. 15.—S. K. K. X. 10.

232. *I jan fu.* See No. 409.

233. 異林 *I lin.* Ming period.—S. K. CXXVIII. 7.—There existed a work with the same title much earlier. It is noticed in the T. P. (10th cent.).

234. 異說 *I shuo.*—P. 38.—Quoted in the Po wu chi (No. 637); thus a work of the Tsin period or earlier.

235. 異聞記 *I wen ki*, by 何先 *Ho Sien.* Sung dyn.—P. 34.—Reprinted in the W. P.

236. 異物志 *I wu chi*, by 楊孚 *Yang Fu.*—P. 25.—An author Yang fu is mentioned in the Sui lit.

237. A work with the same title by 曹叔雅 *Ts‘ao Shu ya.*—P. 30.—The same is noticed in the list of the T. P. (10th cent.), but seems to belong to an earlier period. A work I wu chi (without author's name) is quoted in the Ts‘i min yao shu (q. v.). The S. Y. mentions two works of this name, one by 譙周 *Ts‘iao Chou* of the period of the three kingdoms, the other by 王逸 *Wang I* of the Han.

238. 異魚圖贊 *I yü t‘u tsan*, by *Yang Shen* (see No. 703).—P. 26.—S. K. K. XII. 25.

239. 異苑 *I yüan*, by 劉敬叔 *Liu King shu.* Liu Sung dyn. (5th cent.).—P. 24.—S. K. K. XIV. 31.

240. 易占 *I chan.* A treatise on Divination, by 京房 *King Fang.* First cent. B. C.—P. 33.—S. K. K. XI. 17.—Reprinted in the H. W.—Mayers 270*a*.

241. 易簡方 *I kien fang.* Medical prescriptions, by 王碩 *Wang Shi.* Sung dyn.—P. med. 17.—W. H. CCXXIII. 13.

242. 易經注疏 *I king chu shu.* The Book of Changes (one of the Classics), commented upon by 王弼 *Wang Pi* of the 3rd cent.—P. 23.—Mayers 812.

243. 易林 *I lin.* Investigations of the Book of Changes, by 焦贛 *Tsiao Kan* of the Former Han.—Reprinted in the H. W.—W. H. CCXX. 8.

244. 益州記 *I chou ki.* Records relating to I chou (Sz' ch'uan), by 任豫 *Jen Yü* of the Tsin dyn.—P. 30.—Sui lit.

245. 益部方物略記 *I pu fang wu lio ki.* This treats of the productions of the present Sz' ch'uan and contains interesting accounts of plants. The author is 宋祁 *Sung K'i.* A. D. 998—1061.—Mayers 639.—S. K. K. VII. 23.—Reprinted in the T. II.

246. 益都耆舊傳 *I tu k'i kiu ch'uan* (I tu is a district in Shan tung). Author 陳壽 *Ch'en Shou* of the Tsin dyn.—T'ang lit.

247. 逸周書 *I Chou shu.* Record of the Chou dynasty, also known under the name of 汲冢周書 *Ki chung Chou shu.* It is said to have been found in the tomb of one of the Wei princes, together with the Bamboo Annals (see No. 70).—P. 29.—Wylie 23.

248. 逸史 *I shi,* by 盧藏用 *Lu Ts'ang yung.* T'ang dyn.—P. 30.—S. Y.

249. 藝菊 *I kü.* A treatise on the cultivation of the Chrysanthemum, by 黃省曾 *Huang Sheng ts'eng.* 16th cent.—Wylie 121.—Reprinted in the Ch. descr. part VII. 4.

250. 藝文類聚 *I wen lei tsü.* A celebrated Cyclopædia, by 歐陽詢 *Ou yang Sün.* A. D. 557—645.—P. 31.—Wylie 146.

251. 夷堅志 *I kien chi,* by *Hung Mai* (see No. 1145), 12th cent.—P. 32.—S. K. K. XIV. 34.

252. 遺書 *I shu,* by 褚澄 *Ch'u Ch'eng.* End of the 5th cent.—P. med. 15.—S. K. K. X. 6.—See also No. 43.

253. 宜都山川記 *I tu shan ch'uan ki.* Description of the hills and rivers of the district of I tu (King chou fu in Hupeh).—T'ang lit.

254. 伊尹書 *I Yin shu.* The Book of I Yin, who was a minister of T'ang, the founder of the Shang dynastv. B. C. 1766.—Mayers 233.—Han lit.

255. *Je ho chi.* See p. 88.

256. 日詢手記 *Ji sün shou ki*, by 王濟 *Wang Tsi* of the Tsin dyn.—P. 37.—S. Y.

256*a*. *Ji yung pen ts‘ao.* See p. 48.

257. 仁齋直指方 *Jen chai chi chi fang*, by 楊士瀛 *Yang Shi ying.* Sung dyn.—P. med. 17.—S. K. K. X. 11.

258. 人參傳 *Jen shen ch‘uan.* A treatise on Ginseng, by 李言聞 *Li Yen wen*, also styled 月池 *Yüe ch‘i*, a medical writer of the Ming period.—P. med. 16.—Ming lit.—K. XCV. 31.

259. 汝南先賢傳 *Ju nan sien hien ch‘uan*, by 周斐 *Chou Fei* of the Tsin dyn.—Sui lit.—Reprinted in the W. P.

260. 如宜方 *Ju i fang*, by 艾元英 *Ai Yüan ying.* Yüan dyn.—P. med. 21.—S. K. CV. 13.

261. 儒醫精要 *Ju i tsing yao*, by 趙繼宗 *Chao Ki tsung.* Ming dyn.—P. med. 19.

262. 儒門事親 *Ju men shi ts‘in*, by 張從正 *Chang Ts‘ung cheng*, liter. name 子和 *Tsz’ ho*, a celebrated physician during the Kin period (12th cent.). Biogr., Kin shi 131.—P. med. 16.—Tung i pao kien 6.—The P. generally quotes this author by his cognomen *Ts‘ung cheng.*

263. 該聞錄 *Kai wen lu*, by 李畋 *Li T‘ien.* Sung dyn.—P. 26.—S. Y.—Reprinted in the W. P.

263*a*. *K‘ai pao Pen ts‘ao.* See p. 46.

264. 開元天寶遺事 *K‘ai yüan T‘ien pao i shi.* Matters omitted in the annals of the reigns of K‘ai yüan and T‘ien pao (first half of the 8th cent.), by 王仁裕 *Wang Jen yü.* Wu tai period.—P. 26.—S. K. K. XIV. 17.

265. 甘藷錄 *Kan shu lu.* A treatise on the Sweet Potato (Batatas edulis), by 陸燿 *Lu Yao.* End of the 18th cent.—Reprinted in the C. T.

266. 甘藷疏 *Kan shu shu.* A treatise on the Sweet Potato. *Sü Kuang k‘i* (see p. 82) of the Ming dyn. wrote a preface to it.—T. LIV.

267. 感應經 *Kan ying king.* Sung dyn.—Reprinted in the W. P.

268. 感應類從志 *Kan ying lei ts‘ung chi*, by *Chang Hua* (see No. 637). Tsin dyn.—P. 28.—S. K. CXXX. 1.

269. *Kan su t'ung chi.* See p. 89.

270. 刊謬正俗 *K'an miu cheng su*, by 顏師古 *Yen Shi ku.* 7th cent.—P. 32.—Mayers 912.

271. 高士傳 *Kao shi ch'uan.* Biographies of celebrated scholars, by 皇甫謐 *Huang fu Mi.* A. D. 215—282.—Wylie 28.—Mayers 216.—Reprinted in the H. W.

272. 庚巳編 *Keng ki pien*, by 姚福 *Yao Fu.* Ming dyn.—P. 35.—Ming lit.

273. *Keng sin yü ts'e.* See p. 53.

274. 急救良方 *Ki kiu liang fang*, by *Chang Shi ch'e* (see No. 687). Ming dyn.—P. med. 19.—S. K. CV. 22.

275. 急就篇 *Ki tsiu pien* (the third character is sometimes changed for 章 *chang* or 草 *ts'ao*). An ancient dictionary, by 史游 *Shi Yu*, who lived under the reign of Han Yüan Ti. B. C. 48—32.—P. 27.—Han lit.—S. K. K. IV. 18.

276. 雞峰備急方 *Ki feng pei ki fang.* Medical prescriptions, by 張銳 *Chang Jui.* A. D. 1133.—P. med. 17.—W. H. CCXXIII. 9.

277. 雞肋篇 *Ki le pien.* Sung dyn.—S. K. K. XIV. 25.

278. *Ki chung chu shu.* See No. 70.

279. *Ki chung Chou shu.* See No. 247.

280. 劇談錄 *Ki t'an lu.* T'ang dyn.—S. K. K. XIV. 32.

281. 冀越集 *Ki yüe tsi*, by 熊太古 *Hiung T'ai ku* (cognomen *Ki yüe*). Yüan dyn.—P. 37.—S. K. CXLIII. 12.

282. 紀異錄 *Ki i lu.* T'ang dyn.—T.

283. 記事珠 *Ki shi chu.* T'ang dyn.—Reprinted in the W. P.

284. *Ki fu t'ung chi.* See p. 87.

285. *K'i kiu ch'uan.* See Nos. 33, 246.

286. 稽神錄 *Ki shen lu*, by 徐鉉 *Sü Hüan* of the Southern T'ang (10th cent.).—P. 24.—S. K. K. XIV. 33.

The W. P. reprints a treatise with the same title by 雍陶 *Yung T'ao.* T'ang dyn.

287. 啓蒙記 *K'i meng ki*, by 顧愷之 *Ku K'ai chi* of the Tsin dyn —Sui lit.—S. Y.—Reprinted in the W. P.

288. 溪蠻叢笑 *K'i Man ts'ung siao*, a work which seems to treat of some Southern aborigines, by 朱輔 *Chu Fu.* Sung dyn.—P. 31.—H. K. II. 27.

289. 奇疾方 *K'i tsi fang.* Medical prescriptions, by 夏德 *Hia Te* (liter. name 子益 *Tsz' i*). Sung dyn.—P. med. 20.—S. K. CIII. 42.

290. *K'i Po king.* See note 12 (1).

291. 家珍 *Kia chen*, by *Chang Kie ku* (see p. 48).—P. med. 16.

292. 家傳方 *Kia ch'uan fang.* Medical prescriptions, by 徐氏 *Sü (shi).*—P. med. 19.—Sui lit.

293. 家訓 *Kia hün*, by 顏之推 *Yen Chi t'ui.* 6th cent.—P. 27.—Wylie 127.—Reprinted in the H. W.

294. 家藏方 *Kia ts'ang fang.* Medical prescriptions, by 楊倓 *Yang T'an.* Sung dyn.—P. med. 17.—W. H. CCXXIII. 10.

295. 嘉話錄 *Kia hua lu*, by 劉禹錫 *Liu Yü si* (liter. name 賓客 *Pin k'o*). T'ang dyn.—P. 36.—S. K. K. XV. 15.

296. 嘉祐雜志 *Kia yu tsa chi*, by 江休復 *Kiang Hiu fu.* A. D. 1062.—P. 37.—Wylie 156.

296*a*. *Kia yu Pu chu Pen ts'ao.* See p. 46.

297. 甲乙經 *Kia i king*, by *Huang fu Mi* (see No. 271).—P. med. 15.—S. K. K. X. 5.

298. 賈氏談錄 *Kia shi T'an lu.* End of the 10th cent.—S. K. K. XIV. 17.

299. 江鄰幾雜志 *Kiang lin ki tsa chi.* The same as No. 296.—P. 37.

300. 江陵記 *Kiang ling ki.* Records of Kiang ling (the present King chou fu in Hu kuang). Frequently quoted in Chinese botanical works. This title appears in the list of the T. (10th cent.), but the work is probably of earlier date.

301. 江南別錄 *Kiang nan pie lu.* Account of Kiang nan (the present Kiang si), by 陳彭年 *Ch'en P'eng nien.* Beginning of the 11th cent.—P. 31.—S. K. K. VI. 24.

302. *Kiang nan t'ung chi.* See p. 89.

303. 江表傳 *Kiang piao ch'uan.*—T'ang lit.

304. *Kiang si t'ung chi.* See p. 90.

305. 江淹集 *Kiang Yen tsi.* Collection of the writings of *Kiang Yen* (see No. 513*a*). 6th cent.—P. 27.—Wylie 182.

306. 交州異物志 *Kiao chou i wu chi.* Account of remarkable objects in Kiao chou (Northern part of the present Annam), by *Yang Fu* (see No. 236).—Sui lit.

306*a*. 交州記 *Kiao chou ki*. Records of Kiao chou (see No. 306), by 劉欣期 *Liu Hin k'i*. Probably 4th or 5th cent.—P. 30.—Quoted in the Ts'i min yao shu (q. v.).

307. 解頤新語 *Kie i sin yü*. Ming dyn.—P. 37.—S. K. CXCVII. 28.

308. 解醒語 *Kie sing yü*. Yüan dyn.—K. and T.

309. 芥茶彙抄 *Kie ch'a hui ch'ao*. Treatise on the Teas produced on the Kie hills near Hu chou (Che kiang), by 冒襄 *Mao Siang*. 17th cent.—Wylie 119.—Reproduced in the C. T.

310. 戒菴漫筆 *Kie an man pi*. Ming dyn.—S. K. CXXVIII. 22.

311. 篋中方 *K'ie chung fang*, by 許孝宗 *Hü Hiao tsung*. P. med. 13.—T'ang lit.

The P. 13 notices a treatise with the same title by *Ts'ien I* (see No. 782). Sung dyn.

312. 建康記 *Kien k'ang ki*. Records of Kien k'ang, which in the 5th cent. was the name for the present Nan king. The work must therefore be a production of that period.

313. 建萬全護命方 *Kien wan ts'üan ku ming fang*, by 楊退修 *Yang T'ui siu*. Sung dyn.—P. med. 17.—W. H. CCXXIII. 4.

314. 劍南方物略 *Kien nan fang wu lio*. A treatise on the productions of Kien nan (the present Sz' ch'uan), by *Ch'en Li* (see No. 133). Sung dyn.—S. K. K. VII. 23.

315. 劍南方物贊 *Kien nan fang wu tsan* (see the preceding), by *Sung K'i* (see No. 245).—P. 28.—S. K. K. VII. 23.

316. 兼明書 *Kien ming shu*, by 丘光庭 *K'iu Kuang t'ing*. Wu tai period.—S. K. K. XIII. 6.

317. 簡要濟衆方 *Kien yao tsi chung fang*. Medical prescriptions, by 周應 *Chou Ying*, a physician of the 11th cent.—P. med. 14.—W. H. CCXXIII. 1.

318. 乾坤秘韞 *K'ien k'un pi yün*, by *K'ü sien* (see p. 53). Ming.—P. med. 18.

319. 乾坤生意 *K'ien k'un sheng i*, by *K'ü sien* (see p. 53). Ming.—P. med. 18.

320. 乾象占 *K'ien siang chan*.—P. 35.—Sung lit. (Astronomy).

321. 金漳蘭譜 *Kin chang lan pu.* A treatise on the *lan* flower (Cymbidium and other orchidaceous plants), by 趙時庚 *Chao Shi keng.* Sung dyn.—Reprinted in the T. LXXXIII. and the K. XLIV.—S. K. K. XII. 24.

322. 金光明經 *Kin kuang ming king.* A Chin. translation of the Golden Light Sutra, made in the beginning of the 4th cent.—P. 27.—Dr. Edkins' Chin. Buddh. p. 109.

323. 金匱鉤玄 *Kin kui kou hüan.* The original work was written by *Chu Chen heng* (see p. 49), and an enlarged edition was issued by *Tai Yüan li* (see No. 37).—P. med. 18.—S. K. K. X. 15.

324. 金匱要畧 *Kin kui yao lio.* A medical treatise, by *Chang Chung king* (see note 12 [5]).—P. med. 15.—Wylie 82.

325. 金匱玉函方 *Kin kui yü han fang.* Medical prescriptions, by *Chung Chung king* (see note 12 [5]).—P. med. 13.

326. 金陵地記 *Kin ling ti ki.* Records of Kin ling, which in the T'ang period was the name for the present Nan king.—Sung lit. (Geography). Probably of earlier date.

327. 金樓子 *Kin lou tsz'.* A historical treatise, by the Emperor 梁元帝 *Liang Yüan Ti* (A. D. 552—555), previously called 繹 *I.*—P. 35.—Wylie 127.

328. 金鑾密記 *Kin luan mi ki.* T'ang dyn.—W. H. CXCVI. 5.—Reprinted in the W. P.

329. 金門記 *Kin men ki.* T'ang dyn.—P. 32.—S. Y.

329*a*. 金史 *Kin shi.* History of the Kin dynasty. A. D. 1115—1234.—Wylie 19.

330. 錦繡萬花谷 *Kin siu wan hua ku.* End of the 12th cent.—Quoted sometimes under the name of *Wan hua ku.*—P. 32.—S. K. CXXXV. 35.

331. 禽蟲述 *K'in ch'ung shu.* A treatise on Birds and Insects, by 袁達德 *Yüan Ta te.* Beginning of the 16th cent.—P. 28.—S. K. CXVI. 43.

332. 禽經 *K'in king.* A treatise on Chinese Birds, by 師曠 *Shi K'uang,* an author of the Chou dyn.—Commented upon by *Chang Hua* (see No. 637) in the 3rd cent.—P. 28.—Han lit.—Wylie 123.—Reprinted in the H. W.

333. 荆州記 *King chou ki.* Account of King chou (the present Hupeh), by 盛弘之 *Ch'eng Hung chi.* 5th cent.—P. 25.—Sui lit.

This is probably the same work which is quoted in the Ts'i min yao shu (q. v.) as 荆州土地記 *King chou t'u ti ki.*

334. 荆川集 *King ch'uan tsi*, by 唐順之 *T'ang Shun chi.* Ming dyn.—P. 39.—S. K. K. XVIII. 34.

335. 荆湖近事 *King hu kin shi.* Sung dyn.—T.

336. 荆楚歲時記 *King Ts'u sui shi ki.* A calendar of the popular customs throughout the year in King and Ts'u (Hu kuang), by 宗懍 *Tsung Lin.* 6th cent.—P. 25.—Wylie 45.—Reprinted in the H. W.

337. 荆揚異物志 *King yang i wu chi.* On remarkable productions of King and Yang (Hu nan and the regions south of the lower Yang tsz' kiang), by 薛瑩 *Sie Yung.*—P. 30.—According to the W. P. Sie Yung was an author of the T'ang.

338. 經驗方 *King yen fang.* Medical prescriptions, by *Ch'en Ji hua* (see No. 795). Sung dyn.—P. med. 18.

A collection with the same title is noticed P. med. 14. Author 陳抃 *Ch'en Pien.* Sung dyn.—W. II. CCXXIII. 12.

339. 經驗良方 *King yen liang fang*, by 鄒福 *Tsou Fu.* Ming dyn.—P. med. 19.—Tung i pao kien 7.

340. 經心錄 *King sin lu*, by 宋俠 *Sung Kia*, a celebrated physician of the T'ang dyn. (7th cent.). See biography, T'ang shu 252.—P. med. 16.

341. 脚氣論 *Kio k'i lun*, by 深師 *Shen shi*, styled also 梅師 *Mei shi.*—P. med. 14.—P. XIII. 58 Shen shi is mentioned as an author of the Tung Tsin (4th cent.).

A work with the same title, belonging to the T'ang period, is noticed in the T'ang lit.

342. 九州記 *Kiu chou ki.* An account of the ancient nine provinces of China, apparently by 何晏 *Ho Yen.*—P. 25.—In the San kuo chi 9 is the biography of an author *Ho Yen*, 3rd cent.

343. 九華山錄 *Kiu hua shan lu.* An account of the mountain Kiu hua (see Appendix 17), by *Chou Pi ta* (see No. 61).—Reprinted in the Yu ming shan ki (q. v.).

344. 九鼎神丹秘訣 *Kiu ting shen tan pi küe.*—P. 29.—Sung lit.—H. K. X. 51 (Taoist works).—Mayers p. 346.

345. 九域志 *Kiu yü chi*, or 元豐九域志 *Yüan feng Kiu yü chi*, a Description of China, by 王存 *Wang Ts‘un.* Published A. D. 1080.—W. II. CCIV. 4.

346. *Kiu huang pen ts‘ao.* See p. 49.

347. 格致鏡原 *Ko chi king yüan.* Inquiry into the origin of affairs and things, by 陳元龍 *Ch‘en Yüan lung.* 1652—1736.—S. K. K. XIV. 12.—Mayers 106.

348. 格致餘論 *Ko chi yü lun*, by *Tan K‘i* (see p. 49).—P. med. 17.

349. 格古要論 *Ko ku yao lun*, by 曹昭 *Ts‘ao Chao.* Beginning of the 15th cent.—S. K. CXXIII. 4.—The Ming lit. states that an enlarged edition of the work was published by 王均 *Wang Kün* in the middle of the 15th cent.—The P. 29 gives 王佐 *Wang Tso* as the author of a work of a similar name (*Ko ku lun*), which is identical with the above, as I have proved by comparing the quotations of the P. and the T.

350. 格物總論 *Ko wu tsung lun.* T‘ang or earlier.

351. 客話 *K‘o hua*, by 晁說 *Chao Yüe*, liter. name 以道 *I tao.* Sung dyn.—P. 38.—S. K. K. XIII. 18.

352. 鉤玄 *Kou hüan*, by 鮮于樞 *Sien Yü ch‘u*, who according to Wylie 133 was an author of the latter part of the 13th cent.

353. 岣嶁神書 *Kou lou shen shu*, by 南宮從 *Nan kung Ts‘ung.*—P. 34.—Kou lou is the name of one of the twelve peaks of the Heng shan (Appendix 6), where Emperor Yü is said to have left an inscription.—Legge's Shu king, prol. 68.

354. 口訣 *K‘ou küe*, by 孫兆 *Sun Chao.*—P. med. 14.—Ming lit.

355. 356. 古今注 *Ku kin chu.* An examination of historical antiquities, by 崔豹 *Ts‘ui Pao*, a native of Yen (Peking). Middle of the 4th cent. The work treats also of plants.—P. 26.—Wylie 128 states that an amplification and elucidation of it was compiled by 馬縞 *Ma Kao* of the Wu tai period, with the title 中華古今注 *Chung hua ku kin chu.*—P. 32 notices a work with the latter title and gives 伏侯 *Fu Hou* as the author. The same author and work appear also in the T. P. (.0th cent.). In the Sui lit. the

author is styled 伏無忌 *Fu Wu ki.* The K. writes his name 伏虔 *Fu K'ien.* Compare also No. 1002.

357. 古今錄驗方 *Ku kin lu yen fang.* Medical prescriptions, by *Ch'u Yü shi* (see No. 1066).—P. med. 13.

358. 古今詩話 *Ku kin shi hua.* Sung dyn.—P. 30.—S. Y.

359. 古今事類合璧 *Ku kin shi lei ho pi*, by 謝維新 *Sie Wei sin.* Sung dyn.—P. 31.—S. K. K. XIV. 6.

360. 古今韻會 *Ku kin yün hui*, by 熊忠 *Hiung Chung.* Yüan dyn.—The S. K. K. IV. 27 states that the authorship has been erroneously ascribed to 黃公紹 *Huang Kung shao.* The P. 27 writes the author's name 黃公武 *Huang Kung wu.*

361. 古樂府 *Ku lo fu.* Yüan dyn.—S. K. K. XIX. 16.—There existed two earlier works with the same title; one is mentioned in the Sui lit., the other as a production of the T'ang in the S. Y.

362. 顧渚山茶記 *Ku chu shan ch'a ki.* On the Tea of the mountain Ku chu (see Appendix 21), by *Lu Yü* (see No. 4).—W. II. CCVI. 2.

363. 菊譜 *Kü pu.* A treatise on the Chrysanthemum, by 劉蒙 *Liu Meng.* Beginning of the 12th cent.—P. 28.—Wylie 121.—Reprinted in the Ch. descr. part VII. 7.—K. XLVIII.—T. LXXXVII.

364. A treatise with the same title by *Fan Ch'eng ta* (see No. 388).—P. 28.—Reprinted in the Ch. l. c. 22; K. l. c., T. l. c.

365. The same title. Author 史正志 *Shi Cheng chi.* Middle of the 12th cent.—P. 28.—Wylie 121.—Reprinted in the Ch. l. c. 22; K. l. c., T. l. c.

366. 橘錄 *Kü lu.* A treatise on Oranges, by 韓產直 *Han Ch'an chi*, styled also 韓彥直 *Han Yen chi.* A. D. 1178.—P. 28.—Wylie 122.—Reprinted in the Ch. descr. part XV. 22; XVII. 42.

367. 居家必用 *Kü kia pi yung.* Ming dyn.—P. 33.—S. K. CXXX. 3.

368. 居山雜志 *Kü shan tsa chi.* Ming. dyn.

369. 局方發揮 *Kü fang fa hui*, by *Tan K'i* (see p. 49).—P. med. 17.

370. 祛疑說 *K'ü i shuo*, by 儲泳 *Ch'u Yung.* 13th cent.—P. 37.—Wylie 133.

371. 瓜蔬疏 *Kua shu shu.* A treatise on Cucurbitaceous Plants and Vegetables, by *Wang Shi mou* (see No. 185).—Reprinted in the T. XLI.

372. 括地志 *Kua ti chi*, by 王泰 *Wang T'ai* of Wei. Period of the three kingdoms.—T'ang lit.

373. 款冬花賦 *K'uan tung hua fu.* A poem on the k'uan tung flower (Petasites), by 傅咸 *Fu Hien* of the Tsin dyn.—K. XCVI. 22.—T. CXIX.

374. 管子 *Kuan tsz'.* Writings of the philosopher 管仲 *Kuan Chung*, died 645 B. C.—P. 34.—Mayers 293.

375. 倦游錄 *Küan yu lu*, by 張師正 *Chang Shi cheng.* Sung dyn.—P. 33.—Reprinted in the W. P.

376. 廣志 *Kuang chi.* An ancient work frequently quoted in Chinese botanical writings, by 郭義恭 *Kuo I kung.* Liang dyn.—P. 26.—Sui lit.

377. 廣州記 *Kuang chou ki.* Account of Kuang tung. The P. 25 quotes two treatises with this title. One is by 顧微 *Ku Wei* of the Tsin dyn. and is found reprinted in the W. P. The other, by 裴淵 *P'ei Yüan*, seems to date from the same period. Both are quoted in the Ts'i min yao shu (q. v.).

378. 廣異記 *Kuang i ki*, by *Lo Shi* (see p. 86).—P. 24.

379. *Kuang K'ün fang p'u.* See p. 70.

380. *Kuang si t'ung chi.* See p. 91.

381. *Kuang tung t'ung chi.* See p. 91.

382. 廣五行記 *Kuang wu hing ki.*—P. 26.—Sung lit.

383. 廣雅 *Kuang ya.* An ancient dictionary, by 張揖 *Chang I* (about A. D. 227—240), who enlarged the Rh ya by adding extracts from writers of the Han dyn. In the reign of *Sui Yang ti* (A. D. 605—617), whose cognomen was 廣 *Kuang*, the title of the book was changed into 博雅 *Po ya*, by which the work is sometimes known. Chang I's title was 博士 *po shi* (Professor). 曹憲 *Ts'ao Hien* of the Sui dyn. added the pronunciation and commentaries.—P. 28.—S. K. K. IV. 16.—Reprinted in the H. W.—The section on plants is reprinted in the T. III. V.

384. *Kuang yü ki.* See p. 69.

384*a*. 光福山記 *Kuang fu shan ki.* Account of the mountain Kuang fu (see Appendix 23). Ming dyn.—Yu min shan ki.

385. *Kui chou t'ung chi.* See p. 91.

386. 桂海果志 *Kui hai kuo chi.* A treatise on the fruits of Southern China, by *Fan Ch'eng ta* (see No. 388).—Reprinted in the T. XV.

387. 桂海草志 *Kui hai ts'ao chi.* On the plants of Southern China, by *Fan Ch'eng ta* (see No. 388).—Reprinted in the T., books I. and X.

388. 桂海虞衡志 *Kui hai yü heng chi.* A treatise on the geographical features, natural history, etc. of the Southern provinces of China, by 范成大 *Fan Ch'eng ta.* Latter part of the 12th cent. Biography, Sung shi 386. He was a native of *Wu hien* (Che kiang). His literary productions are frequently quoted in Chinese botanical works.—P. 30.—Wylie 45.

389. 閨閣事宜 *Kui ko shi i.* Ming dyn.?—P. 34.—H. K. III. 24.

390. 貴耳錄 *Kui rh lu,* by 張端義 *Chang Tuan i.* Sung dyn.—S. K. K. XIII. 23.

391. 癸辛雜志 *Kui sin tsa chi,* by *Chou Mi* (see No. 48).—P. 32.—Wylie 159.

392. 龜經 *Kui king.* On divination by means of the tortoise. T'ang dyn.—P. 28.—Wylie 106.

393. 歸田錄 *Kui t'ien lu,* by *Ou yang Siu* (see No. 867).—P. 26.—Wylie 156.—The W. H. CCXVI. 7 notices a work with the same title by *Li T'ien,* Sung dyn.

394. 鬼遺方 *Kui i fang.* Medical prescriptions, by 劉涓子 *Liu Küan tsz'.* Towards the end of the Tsin dyn.—P. med. 14.—W. H. CCXXIII. 14.

395. 坤元錄 *K'un yüan lu.*—Sung lit. (Geography).

396. 崑山縣志 *K'un shan hien chi.* Description of the district of K'un shan (Su chou fu, Che kiang). Seems to date from the Sung dyn.

397. 菌譜 *Kün pu.* A treatise on Mushrooms, by 陳仁玉 *Ch'en Jen yü.* A. D. 1245. It treats of 27 species of mushrooms produced at T'ai chou in Che kiang.—P. 29.—Wylie 122.—Reprinted in the Ch. descr. part III.

398. 郡國志 *Kün kuo chi.*—P. 32.—This is a Geography of China, by 章懷 *Chang Huai* of the T'ang dyn., according to the S. Y.—The T. P. has a work *Yüan ho Kün kuo chi* (reign of Yüan ho, 806—21), probably the same.

399. *K'ün fang pu.* See p. 70.

400. 群書日抄 *K'ün shu ji ch'ao*, by 丘瓊山 *K'iu K'iung shan.* Ming dyn.?—P. med. 20.—Ming shi 181.

401. 群書續抄 *K'ün shu sü ch'ao*, by 何子元 *Ho Tsz' yüan*, properly 何孟春 *Ho Meng ch'un.* Ming dyn. Biogr., Ming shi 191.—P. med. 20.

402. *K'ün shu tsi shi yüan hai.* See No. 917.

403. 羣碎錄 *K'ün sui lu*, by *Ch'en Ki ju* (see No. 28).—S. K. CXXXII. 26.

404. 孔帖 *K'ung t'ie.* Quoted in the K. and the T. Probably a work by *K'ung Ch'uan* (see No. 626) is meant.

405. 孔子家語 *K'ung tsz' kia yü.* Traditional words of Confucius, commented upon by 王肅 *Wang Su*, about A. D. 240.—P. 23.—Wylie 66.

406. 空同子 *K'ung t'ung tsz'.* Close of the 14th cent.—S. K. CXXIV. 13.

407. 國史補 *Kuo shi pu*, by 李肇 *Li Chao.* Beginning of the 9th cent.—P. 31.—S. K. K. XIV. 14.

408. 國語 *Kuo yü.* Remarks concerning the States of ancient China, by *Tso K'iu ming*, the author of the Tso ch'uan (see No. 89).—P. 30.—Wylie 6.

409. 果然賦 *Kuo jan fu.*—P. 28 (in some editions of the P. we read 異然賦 *I jan fu*), by 鍾毓 *Chung Yü.* 3rd cent. See his biography, San kuo chi (Wei shu) 13.

410. 果疏 *Kuo shu.* A treatise on Garden fruits, by *Wang Shi mou* (see No. 185).—Reprinted in the T. XV.

411. 蘭譜 *Lan pu.* A treatise on the *lan* flower (Cymbidium and other orchidaceous plants), by *Ch'en Jen yü* (see No. 397).—H. K. III. 6.

412. A treatise with the same title by 王貴學 *Wang Kui hio.* Sung dyn.—S. K. CXVI. 33.—Reprinted in the K. XLIV.

413. Same title. Author *Kao Lien* (see No. 908).—Wylie 121.

414. 蘭室秘藏 *Lan shi pi ts'ang*, by *Tung Yüan* (see p. 48).—P. med. 16.

415. 蘭言 *Lan yen*. A treatise on the *lan* flower, by *Mao Siang* (see Nos. 309 and 411).—Reprinted in the C. T.—Wylie 121.

416. 瑯嬛記 *Lang hüan ki*. Yüan dyn.—S. K. CXXXI. 9.

417. 琅琊漫鈔 *Lang ye man ch'ao*, by 文林 *Wen Lin*. Ming dyn.—P. 35.—S. K. CXXVII. 13.

418. 老學菴筆記 *Lao hio an pi ki*, by *Lu Yu* (see No. 553).—Wylie 132.

419. 老子 *Lao tsz'*. The writings of 老君 *Lao Kün*, the reputed founder of the Taoist system. Close of the 6th cent. B. C.—P. 34.—Mayers 336.

420. 勞瘵方 *Lao chai fang*. Medical prescriptions, by 崔知悌 *Ts'ui Chi ti*. 7th cent.—P. med. 14.—Biogr., T'ang shu 239.

421. *Lei kung P'ao chi lun*. See p. 41.

422. *Lei kung Yao tui*. See p. 40.

423. 類林 *Lei lin*. Ming dyn.—S. K. CXXXII. 7.

424. 類篇 *Lei pien*. A dictionary, by 司馬光 *Sz' ma Kuang*. A. D. 1009—1086.—P. 30.—Wylie 8.

425. 類說 *Lei shuo*, by 曾慥 *Ts'eng Ts'ao*. Sung dyn.—P. 36.—S. K. K. XIII. 33.

426. 冷齋夜話 *Leng chai ye hua*. Close of the 11th cent.—Wylie 131.

427. 楞嚴經 *Leng yen king*. A translation of the Lenga sutra, made in A. D. 705 by a Hindoo monk at Canton.—P. 37.—Edkins' Chin. Buddh. 289.

428. 荔枝譜 *Li chi pu*. A treatise on the *Lichi* fruit (Nephelium Litchi), by 蔡襄 *Ts'ai Siang*. A. D. 1059.—P. 28.—Reprinted in the Ch. descr. part XVII. 49 and T. CCLXXIII.

429. Same title. Author 宋珏 *Sung Kio*. Ming dyn.—Reprinted in the Ch. l. c. 56 and T. l. c.

430. Same title. Author 曹蕃 *Ts'ao Fan*. Ming dyn.—Reprinted in the Ch. l. c. 69 and T. l. c.

431. Same title. Author 徐𤊹 *Sü Po*. Ming dyn.—Biogr., Ming shi 286.—Reprinted in the Ch. l. c. 73 and T. CCLXXIV.

432. Same title. Author 鄧慶寀 *Teng K'ing ts'ai*, liter. name 道協 *Tao hie*. Ming dyn.—S. K. CXVI. 36.—Reprinted in the Ch. l. c. 85 and T. l. c.

433. Same title. Author 屠本畯 *T'u Pen tsün*. Ming dyn.

434. Same title. Author 黃履庚 *Huang Li keng*. Ming dyn.

435. 荔枝話 *Li chi hua*. Miscellaneous observations on the Lichi fruit, by 林嗣環 *Lin Sz' huan*. Present dyn.—Wylie 122.

436. 李孝伯傳 *Li Hiao po ch'uan*.—P. 24.—*Li Hiao po's* biography is found in the Hou Wei shu (see No. 172) book 53.

437. 李寶臣傳 *Li Pao ch'en ch'uan*.—P. 24.—See T'ang shu 211, Biography of *Li Pao ch'en*.

438. 李義山集 *Li I shan tsi*. Writings of *Li I shan*. T'ang dyn.—P. 39.—S. K. CLI. 10.

439. 李紳文集 *Li Shen wen tsi*. Writings of *Li Shen*. T'ang dyn.—P. 39.—S. K. K. XV. 18.

440. *Li shi Yao lu*. See p. 40.

441. 李太白集 *Li T'ai po tsi*. Writings of *Li T'ai po*. 8th cent.—P. 38.—Wylie 183.

442. *Li ki*. See p. 33.

443. 禮斗威儀 *Li tou wei i*. 4th or 5th cent.—P. 33.

444. *Li sao pien cheng*. See No. 74.

445. 離騷草木疏 *Li sao ts'ao mu shu*. Commentary on the plants mentioned in *K'ü Yüan*'s celebrated poem Li sao (see No. 74), by 吳仁傑 *Wu Jen kie*. Sung dyn. About 50 plants are spoken of there.—S. K. K. XV. 1.—Reprinted in the collection Chi pu tsu chai (Wylie p. 214).

A treatise with the same name is mentioned in the Sui lit. Author 劉杳 *Liu Yao* of the Liang dyn.

446. *Li tai ti li chi yün pien kin shi*. See p. 69.

447. 兩京記 *Liang king ki*. Description of the two metropolitan cities of the T'ang dyn., by 韋述 *Wei Shu*. 8th cent.—P. 29.—Wylie 45.

448. 兩山墨談 *Liang shan mo t'an*, by 陳霆 *Ch'en T'ing*. Ming dyn.—P. 35.—S. K. CXXVI. 7.

449. 梁簡文帝勸醫文 *Liang Kien Wen Ti küan i wen*.—P. 27.—By the Emperor *Kien Wen Ti* (550—52).

450. 梁書 *Liang shu*. History of the Liang dynasty. A. D. 502—557, by 蕭顯明 *Siao Hien ming*.—P. 23.—But the Liang shu now extant is by 姚思廉 *Yao Sz' lien*. 7th cent.—Wylie 13.

451. 梁四公子記 *Liang Sz' kung tsz' ki*. Chronicle of the four worthies of the Liang dynasty, by 張說 *Chang Yüe*. A. D. 667—730.—P. 24.—W. H. CXCVIII. 5.—Mayers 32.

452. 涼州異物志 *Liang chou i wu chi*. Remarkable objects in the (ancient) province of Liang (the present Kan su), by 萬震 *Wan Chen*.—P. 30.—Sui lit.—The author lived in the 3rd cent.

453. 涼州記 *Liang chou ki*. Description of the province of Liang chou (the present Kan su). 4th or 5th cent.—S. Y.

454. 蓼花洲閒錄 *Liao hua chou hien lu*, by 高文虎 *Kao Wen hu*. Sung dyn.—P. 38.—H. K. III. 49.—Reprinted in the W. P.

455. 遼史 *Liao shi*. History of the Liao dynasty. A. D. 916—1125, by 脫脫 *T'o t'o*. Yüan dyn.—P. 30.—Wylie 18.

456. 列仙傳 *Lie sien ch'uan*. Taoist biographies, by 劉向 *Liu Hiang*. B. C. 80—9.—P. 24.—Wylie 175.

457. 列星圖 *Lie sing t'u*.—P. 35.—Mentioned in the T. P. (10th cent.). Probably of earlier date.

458. 列子 *Lie tsz'*. Lectures of 列禦寇 *Lie Yü k'ou*, a Taoist philosopher, early in the 4th cent. B. C., published by his pupils and commented upon by 張湛 *Chang Chan*. 4th cent. A. D.—P. 23.—Wylie 174.

459. 鍊粉圖 *Lien fen t'u*, by 狐剛子 *Hu Kang tsz'*.—P. 26.—The work and the author are mentioned in the Sung lit.—The name of *Hu Kang tsz'*, apparently a Taoist author, occurs already in the Sui lit.

460. 臨川記 *Lin ch'uan ki* (Lin ch'uan in Kiang si), by 荀伯子 *Sün Po tsz'* of the Liu Sung dyn. (5th cent.). See biography, Sung shu 60.—P. 33.—T. P.

461. 臨川集 *Lin ch'uan tsi*, by 王荊公 *Wang King kung*.—P. 39.—The latter is the title of the celebrated scholar 王安石 *Wang An shi*. A. D. 1021—1086.—Mayers 807.—S. K. K. XV. 38.

462. 臨海異物志 *Lin hai i wu chi*. An account of remarkable objects in the department of Lin hai (in Che kiang), by

沈瑩 *Ch'en Yung.* 5th cent., perhaps earlier.—P. 30.—S. Y.—This treatise is quoted in the Ts'i min yao shu (q. v.).

463. 臨海水土記 *Lin hai shui t'u ki,* by *Ch'en Yung* (see No. 462).—P. 29.—Sui lit.

464. 林邑記 *Lin i ki.* An account of Lin i (Cochinchina), by 東方朔 *Tung fang So.* 2nd cent. B. C.—P. 30.—Mayers 689.

465. 嶺南異物志 *Ling nan i wu chi.* Account of remarkable objects in the Southern provinces of China, by 孟琯 *Meng Kuan.* Beginning of the 9th cent.—P. 25.—Sh. Y.

466. 嶺南方 *Ling nan fang,* by 王方慶 *Wang Fang k'ing.* T'ang dyn.—P. med. 17.—T'ang lit.

467. 嶺南風物記 *Ling nan feng wu ki.* Account of the Southern provinces of China, by 吳綺 *Wu K'i.* Present dyn.—S. K. K. VII. 26.

468. 嶺南雜記 *Ling nan tsa ki.* Record of the geography, natural productions, etc. of Southern China, by 吳震方 *Wu Chen fang.* Present dyn.—Wylie 50.

469. 嶺表錄異 *Ling piao lu i.* Account of the natural productions of China, by 劉恂 *Liu Sün.* T'ang dyn.—P. 25.—S. K. K. VII. 23.

470. 嶺外代答 *Ling wai tai ta.* Geographical and other accounts of Southern China and foreign countries, by 周去非 *Chou K'ü fei.* 12th cent.—Wylie 45.

471. 靈樞經 *Ling ch'u king.* A work on internal maladies and the practice of acupuncture, ascribed to the Emperor *Huang Ti* (see p. 27), but really for the greater part the production of *Wang Ping* (see No. 204).—P. med. 15.—Wylie 78.

472. 靈苑方 *Ling yüan fang.* Medical prescriptions, by *Ch'en Ts'un chung* (see No. 510).—P. med. 14.

473. 零陵總記 *Ling ling tsung ki.* Description of Ling ling (Yung chou fu, Hu nan). Sung dyn.—W. H. CCV. 6.

474. 六書正譌 *Liu shu cheng o,* by 周弼 *Chou Pi,* according to the P. 27.—But the S. K. K. IV. 22 ascribes this work to 周伯琦 *Chou Po k'i* of the Yüan, whilst *Chou Pi* is mentioned there, XVI. 42, in connection with another work, as an author of the Sung.

475. 六書本義 *Liu shu pen i.* A dictionary, by 趙撝謙 *Chao Hui k‘ien,* liter. appellation 古則 *Ku tse.*—P. 27.—S. K. K. IV. 23.

476. 六書精蘊 *Liu shu tsing yün.* A dictionary, by 魏子才 *Wei Tsz' ts‘ai,* properly 魏校 *Wei Kiao.* Ming dyn.—Biogr., Ming shi 282.—P. 27.—S. K. XLIII. 14.

477. *Liu t‘ie.* See No. 626.

478. 柳宗元傳 *Liu Tsung yüan ch‘uan.* Biography of *Liu Tsung yüan,* a celebrated poet of the 8th cent. Liter. name 子厚 *Tsz' hou.*—P. 24.—Mayers 419.

479. 柳子厚文集 *Liu Tsz' hou wen tsi.* Poems of *Liu Tsung yüan* (see No. 478).—P. 38.—Mayers 419.

480. 劉根別傳 *Liu Ken pie ch‘uan.* Biography of *Liu Ken,* who according to the Sh. Y. lived about B. C. 30.—P. 37.

481. *Liu kiu kuo chi lio.* See p. 92.

482. 洛陽花木記 *Lo yang hua mu ki.* Flowers and trees of Lo yang, the ancient Chinese metropolis in Ho nan, by 周氏 or 周敘 *Chou Sü.* Second half of the 11th cent.—P. 29.—Reprinted in the T. X.

483. 洛陽伽藍記 *Lo yang kia lan ki.* Description of the Buddhist establishments in Lo yang, the metropolis during the Northern Wei, by 楊衒之 *Yang Hüan chi,* an officer of that dynasty. 5th cent.—Reprinted in the H. W.—P. 35.—Wylie 44.

484. 洛陽名園記 *Lo yang ming yüan ki.* On the Gardens of Lo yang (see No. 482), by 李格非 *Li Ko fei.* Sung dyn.—P. 29.—S. K. K. VII. 20.

485. 洛陽牡丹記 *Lo yang mu tan ki.* A treatise on the mu tan flower (Pæonia Moutan) of Lo yang (see No. 482), by *Ou yang Siu* (see No. 867).—Reprinted in the Ch. descr. part XI. 55 and T. CCLXXXVII.

486. Same title. Author *Chou Sü* (see No. 482).—Reprinted in the T. l. c.

487. 羅浮山記 *Lo fou shan ki.* Record of the Lo fou mountain (see Appendix 29), by 郭之美 *Kuo Chi mei.* A. D. 1051.—W. H. CCVI. 4.—A work with the same name is mentioned already in the T. P. (10th cent.).

488. 羅浮山疏 *Lo fou shan shu* (see the preceding), by 竺法眞 *Chu Fa chen.*—P. 31.—This work and the author are mentioned in the T. P., but may be of earlier date.

488*a*. *Lo kie ch'a ki.* See No. 995.

489. 樂休園菊譜 *Lo hiu yüan kü pu.* On the Chrysanthemum in the garden Lo hiu (?). Reprinted in the Ch. descr. part VII. 34. Apparently a production of the present dynasty.

490. 魯定公傳 *Lu Ting kung ch'uan.* An ancient narrative of 宋 *Sung*, prince of *Lu* (about B. C. 500), whose posthumous title was Ting kung.—P. 24.—Legge's Confucian Anal. p. 25.

491. 路史 *Lu shi*, by 羅泌 *Lo Pi.* Sung dyn.—Wylie 24.

492. 錄異記 *Lu i ki.* A fabulous record by the Taoist priest 杜光庭 *Tu Kuang t'ing.* 10th cent.—P. 34.—Wylie 160.

But a work with the same title must have been extant in the 6th cent., as it is quoted in the *King ts'u sui shi ki* (see No. 336).

493. 陸龜蒙詩 *Lu Kui meng shi.* Poems of *Lu Kui meng.* T'ang dyn.—P. 27.—T'ang shu 196.

494. 廬陵記 *Lü ling ki.* Records of Lü ling (the present Ki shui hien, Kiang si). 5th or 6th cent.

495. 廬山記 *Lü shan ki.* An account of the mountain Lü (Appendix 30), by 陳令舉 *Ch'en ling kü*, liter. appellation 舜俞 *Shun yü.* 11th cent.—Wylie 44.

There are several treatises bearing the same title. One of them is quoted in the Ts'i ming yao shu (q. v.); two are quoted in the T. P.

496. 呂氏春秋 *Lü shi ch'un ts'iu.* A collection of historical notices of the early history of China, by 呂不韋 *Lü Pu wei*, died B. C. 237, the father of Emperor Shi Huang Ti.—P. 23.—Han lit.—Wylie 126.

497. 論衡 *Lun heng.* Critical disquisitions, by 王充 *Wang Ch'ung.* A. D. 19—90.—P. 27.—S. K. K. XIII. 15.—Mayers 795.—Reprinted in the H. W.

498. 龍城錄 *Lung ch'eng lu.* Historical records referring to the earlier part of the T'ang, by *Liu Tsung yüan* (see No. 478).

499. 龍江錄 *Lung kiang lu.*—P. 38.—This is apparently the same work as that quoted in the Ming lit. with the title 龍江夢餘錄 *Lung kiang meng yü lu*, by 唐錦 *T'ang Kin.*

500. 龍 魚 河 圖 *Lung yü ho t'u.*—P. 27.—Quoted in the Ts'i min yao shu (q. v.).

501. 馬 經 *Ma king.* A treatise on horses, apparently.—P. 28.—Sung lit.

502. *Ma ch'u t'u pu.* See p. 81.

503. 茅 山 志 *Mao shan chi.* Description of the Mao mountain (see Appendix 19), by 劉 大 彬 *Liu Ta pin,* a Taoist priest of the Yüan dyn.—S. K. LXXVI. 1.

504. 茅 山 記 *Mao shan ki* (see No. 503), published A. D. 1062.—P. 31.—W. H. CCVI. 2.

505. 茅 亭 客 話 *Mao t'ing k'o hua,* by 黃 休 復 *Huang Hiu fu.* Sung dyn.—P. 27.—S. K. K. XIV. 33.

506. *Mao shi niao shou ts'ao mu ch'ung yü shu.* See p. 33.

507. 梅 譜 *Mei pu.* Treatise on the *mei* (Prunus, var. species), by *Fan Ch'eng ta* (see No. 388).—P. 28.—S. K. K. XII. 22.

508. 梅 堯 臣 詩 *Mei Yao ch'en shi.* Poems of *Mei Yao ch'en.* 11th cent.—P. 38.—Sh. Y. (Sung period).

509. 捫 蝨 新 話 *Men shi sin hua,* by 陳 善 *Ch'en Shan.* Sung dyn.—S. K. CXXVII. 3.

510. 夢 溪 筆 談 *Meng k'i pi t'an,* by 沈 括 *Ch'en Kua.* Liter. appellation 存 中 *Ts'un chung.* Middle of the 11th cent.—See biogr., Sung shi 331.

There is an appendix 補 筆 談 *Pu Pi t'an,* and a supplementary book besides, entitled 續 筆 談 *Sü Pi t'an.*

511. 夢 餘 錄 *Meng yü lu,* by *T'ang Kin* (see No. 499).

512. 棉 花 圖 *Mien hua t'u.* A treatise on the cultivation of Cotton, with 16 engravings, published in 1765 by the Viceroy of Chihli.

513. 閩 中 記 *Min chung ki,* by 林 諝 *Ling Sü.* T'ang dyn.—W. H. CCV. 10.

513*a*. 閩 中 草 木 頌 *Min chung ts'ao mu kung.* Eulogy of the plants of Min (Fu kien), by *Kiang Yen* (see No. 305).—Reprinted in the T. II.

514. 閩 部 疏 *Min pu shu.* A geographical description of Fu kien, detailing also the natural productions of that province, by *Wang Shi mou* (see No. 185).—S. K. LXXVII. 17.

515. 閩書 *Min shu.* A description of the province of Fu kien, by 何喬遠 *Ho K‘iao yüan.* End of the 16th cent.—S. K. LXXIV. 19.—Accounts of plants found in this work are reprinted in the T. CLXXXII.

516. 名醫錄 *Ming i lu.* History of celebrated physicians.—P. med. 16.—Sung lit.

517. *Ming i pie lu.* See p. 42.

518. 名山記 *Ming shan ki.* A work on celebrated mountains, by 王子年 *Wang Tsz' nien* (see No. 736).—W. H. CCXV. 4.

A work with the same title, published in the Ming period, is noticed in the S. K. LXXVIII. 6.

519. 名山游記 *Ming shan yu ki.* An account of the celebrated mountains of China, by *Wang Shi mou* (see No. 185).

520. 名苑 *Ming yüan*, by *Sz' ma Kuang* (see No. 424).—P. 28.

521. 明皇雜錄 *Ming kuang tsa lu*, by 鄭處誨 *Cheng Ch‘u hui.* T‘ang dyn.—P. 26.—S. K. K. XIV. 14.

522. 明醫雜著 *Ming i tsa chu*, by 王節齋 *Wang Tsie chai.* Ming dyn. (?)—P. med. 20.—H. K. VI. 32.

522a. *Ming chi.* See p. 135.

523. 明道雜志 *Ming tao tsa chi*, by 張耒 *Chang Lei.* Sung dyn.—See biogr., Sung shi 414.—P. 37.—S. Y.

524. 墨莊漫錄 *Mo chuang man lu*, by 張邦基 *Chang Pang ki.* Middle of the 12th cent.—Wylie 132.

525. 墨客揮犀 *Mo k‘o hui si*, by 彭乘 *P‘eng Ch‘eng*, a native of Shu (Sz' ch‘uan). First half of the 11th cent.—P. 36.—Sh. Y.—S. K. XIV. 22.

526. 墨譜 *Mo pu.* A treatise on Ink, by *Su I kien* (see No. 53).—P. 29.—S. K. K. XII. 18.

527. 墨子 *Mo tsz'.* Writings of 墨翟 *Mo Ti*, a celebrated philosopher between the 4th and 5th centuries B. C.—P. 34.—Wylie 125.

528. 脈經 *Mo king.* A treatise on the Pulse, by *Wang Shu ho* (see note 12 [7]).—P. med. 15.—Wylie 78.

529. 脈訣刊誤 *Mo küe k‘an wu*, by 戴啓宗 *Tai K‘i tsung.* Yüan dyn.—P. med. 16.—S. K. K. X. 15.

530. 牡丹八書 *Mu tan pa shu*. Eight epistles on the mu tan flower (Pæonia Moutan), by 薛鳳翔 *Sie Feng siang*. Ming dyn.—S. K. CXVI. 32.—Reprinted in the Ch. descr. part XI. 81 and T. CCLXXXVIII.

531. 牡丹譜 *Mu tan pu*. A treatise on Pæonia Moutan, by *Ou yang Siu* (see No. 867).—P. 28.—T. CCLXXXVII.—See also No. 887.

532. 牡丹榮辱志 *Mu tan yung ju chi*. A classified arrangement of the many varieties of Pæonia Moutan, by 丘璿 *K'iu Süan*. Sung and Yüan period.—S. K. CXLIV. 17.—Wylie 121.—Reprinted in the T. CCLXXXVII.

533. 木棉譜 *Mu mien pu*. A treatise on Cotton, published during the Ming period, with a preface by *Wang Siang tsin* (see p. 70).—Reprinted in the T. CCCIII.

534. Same title. Author 褚華 *Ch'u Hua*. Towards the close of the last cent.—Wylie 77.—Reprinted in the C. T.

535. *Mu mien t'u pu*. See p. 81.

536. 牧豎閑談 *Mu shu kien t'an*, by 景煥 *King Huan*. Sung dyn.—P. 35.—S. Y.

537. 幕府燕閑錄 *Mu fu yen kien lu*, by 畢仲詢 *Pi Chung sün*. Sung dyn.—P. 38.—S. Y.—Reprinted in the W. P.

538. 穆天子傳 *Mu t'ien tsz' ch'uan*. A narrative of the adventures of the Emperor Mu wang (1000 B. C.) on his journey to the West. Said to have been found in a tomb of one of the Wei princes, in 281 A. D.—P. 24.—Wylie 153.

539. 南州異物志 *Nan chou i wu chi*. A work on remarkable objects in the Southern provinces, by *Wan Chen* (see No. 452).—P. 25.—Quoted in the Ts'i min yao shu (q. v.).

A work of the same title by *Sü Piao* (see No. 540) is quoted in the Hai yao pen ts'ao (see p. 45).

540. 南州記 *Nan chou ki*. Account of the Southern provinces, by 徐表 *Sü Piao*.—P. 25.—Work and author quoted in the Ts'i min yao shu (q. v.).

541. 南窻記談 *Nan ch'uang ki t'an*. Early part of the 12th cent.—P. 31.—Wylie 157.

542. 南中志 *Nan chung chi* (erroneously sometimes quoted as 中南志 *Chung nan chi*), apparently a description of Southern China, by *Ch'ang K'ü* (see No. 190).—S. K. LXXVIII. 10.

543. 南中八郡志 *Nan chung pa kün chi*. This, frequently quoted in the T., is apparently a production of the 4th or 5th cent. It is probably the same as the 南州八郡志 *Nan chou pa chung chi*, quoted in the Ts'i min yao shu (q. v.).

544. 南方異物志 *Nan fang i wu chi*. An account of remarkable productions of the provinces of Southern China, by 房千里 *Fang Ts'ien li*. 5th cent. or earlier.—P. 25.—Quoted in the Ts'i min yao shu (q. v.).

545. 南方記 *Nan fang ki*. Account of the Southern provinces of China, by *Sü Piao* (see No. 540). Quoted in the Wei wang hua mu chi and the Ts'i min yao shu (q. v.).

546. *Nan fang ts'ao mu ch'uan*. See p. 38.

547. 南海古蹟記 *Nan hai ku tsi ki*, by *Wu Lai* (see No. 1125).

548. 南行方 *Nan king fang*. Medical prescriptions, by 楊炎 *Yang Yen*, died A. D. 781.—P. med. 20.—Mayers 898.

549. 南康記 *Nan k'ang ki*. Records of Nan k'ang (in Kiang si), by 鄧顯明 *Teng Hien ming* (sometimes written 鄧德明 *Teng Te ming*) of the 4th or 5th cent.—P. 32.—S. Y.—T. P.

The T. P. mentions a work with the same title by 王歆之 *Wang Hin chi*.

550. 南蠻記 *Nan Man ki*. Account of the Southern aborigines.—P. 25.—Sung lit.

551. 南部新書 *Nan pu sin shu*. Published about A. D. 975.—S. K. K. XIV. 18.

552. 南徐州記 *Nan Sü chou ki*, by *Shan K'ien chi* (see No. 1041).—Sui lit.—Nan Sü comprised the Northern part of the present Kiang su.

553. 南唐書 *Nan T'ang shu*. History of the Southern T'ang. A. D. 937—960, by 陸游 *Lu Yu*. 12th cent.—P. 30.—Wylie 33.

554. 南齊書 *Nan Ts'i shu*. History of the Southern Ts'i dynasty. A. D. 479—501, by 蕭子顯 *Siao Tsz' hien*. 5th cent.—P. 30.—Wylie 13.

555. 南都賦 *Nan tu fu*, by 張衡 *Chang Heng* of the After Han dyn.—S. Y.

556. 南陽活人書 *Nan yang huo jen shu*, by 朱肱 *Chu Kung*, pseudonym 無求子 *Wu k'iu tsï*. Sung dyn.—P. med. 21.—Tung i pao kien 5.—W. H. CCXXII. 8.

557. 南陽詩注 *Nan yang shi chu*. Sung dyn. (?)—T.

558. 南岳魏夫人傳 *Nan yo Wei fu jen ch'uan*. Narrative of a lady Wei of Nan yo (Heng mountain in Hu nan). Seems to be a Taoist tale referring to the Tsin dynasty.—P. 24.—Sui lit.—W. H. CCXXIV. 8.

559. 南越志 *Nan Yüe chi*. A description of Nan Yüe (South-China), by 沈懷遠 *Ch'en Huai yüan*. Liu Sung dyn. (5th cent.).—W. H. CCV. 12.—Reprinted in the W. P.—Quoted in the Ts'i min yao shu (q. v.), which refers also to a treatise 南越經 *Nan Yüe king*.

Two treatises bearing the title *Nan Yüe chi*, by different authors of the T'ang and Sung periods, are mentioned in the S. Y.

560. 南越行紀 *Nan Yüe hing ki*, by 陸賈 *Lu Kia*. B. C. 200.—Quoted in the Nan fang ts'ao mu ch'uan (q. v.).—Mayers 437.

561. *Nan Yüe pi ki*. See p. 92.

562. 難經 *Nan king*. A work on doubtful medical questions, by *Ts'in Yüe jen*. 6th cent. B. C. (see note 12 [3]).—P. med. 15.—Mayers 553.

563. 能改齋漫錄 *Neng kai chai man lu*. Middle of the 12th cent.—Wylie 128.

564. 涅槃經 *Nie p'an king*. A Chinese translation of the Nirvana Sutra. A. D. 170.—P. 37.—Edkins' Chin. Buddhism p. 108.

565. *Nung cheng ts'üan shu*. See p. 82.

566. *Nung sang i shi tso yao*. See p. 82.

567. *Nung sang tsi yao*. See p. 82.

568. *Nung sang t'ung küe*. See p. 81.

569. *Nung shu*. See No. 35 and p. 81.

570. 峨眉山志 *O mei shan chi*. A description of the O mei mountain (see Appendix 30). Sung dyn.—W. H. CCVI. 1.—The S. K. LXXVI. 25, 28 mentions two works with the same title, both published during the present dyn. in the middle of the 17th cent.

571. 歐陽公文集 *Ou yang kung wen tsi.* Writings of *Ou yang Siu* (see No. 867).—Wylie 185.

572. *Pa Min t'ung chi.* See p. 90.

573. 稗史 *Pai shi,* by 仇遠 *Ch'ou Yüan.* Yüan dyn.—P. 37.—S. Y.

A work with the same title by 徐克昭 *Sü K'o chao,* Ming dyn., is noticed in the H. K. III. 60.

573*a*. 盤山志 *P'an shan chi.* A description of the P'an mountain, north-east of Peking (see Appendix 37), published in 1754.—S. K. K. VII. 19.

574. 保慶集 *Pao k'ing tsi.* Sung dyn.—P. med. 20.—W. H. CCXXIII. 9.

575. 保生要錄 *Pao sheng yao lu.* T'ang dyn.—P. med. 20.—S. Y.

576. 保壽堂經驗方 *Pao shou t'ang king yen fang,* by 劉松石 *Liu Sung shi.* Ming dyn.—P. med. 18.

577. 寶貨辨疑 *Pao huo pien i.* 12th or 13th cent.—P. 29.—H. K. II. 34.

578. 寶藏論 *Pao ts'ang lun,* by 軒轅述 *Hien Yüan shu.* Wu tai period.—P. 25.—W. H. CCXXII. 7.

579. 抱朴子 *Pao p'o tsz'.* A work on Taoist philosophy, alchimy, etc., giving also some accounts of medicinal plants, by *Ko Hung* (see note 12 [8]) of the 3rd and 4th cent.—P. 23.—Wylie 175.—Reprinted in the H. W.

580. *P'ao chi lun.* See p. 41.

581. 北征錄 *Pei cheng lu,* by 金幼孜 *Kin Yu tsz'.* Ming dyn.—P. 33.—S. K. LII. 38.

582. 北戶錄 *Pei hu lu.* A geographical account of Southern China, by 段公路 *Tuan Kung lu.* T'ang dyn.—P. 33.—S. K. K. VII. 23.—Reprinted in the W. P.

583. 北夢瑣言 *Pei meng so yen,* by 孫光憲 *Sun Kuang hien.* Middle of the 10th cent.—P. 26.—Wylie 155.

584. 北邊備對 *Pei pien pei tui.* Sung dyn.—S. K. LXXV. 27.

585. 北史 *Pei shi.* History of the Northern Dynasties. A. D. 386—581, by 李延壽 *Li Yen shou.*—P. 23.—Wylie 13.

586. 北堂書鈔 *Pei t'ang shu ch'ao.* A celebrated collection of literary productions, by 虞世南 *Yü Shi nan.* T'ang dyn.—P. 31.—S. K. K. XIV. 1.

587. *Pen king.* See p. 29.

588. 本事方 *Pen shi fang.* Medical prescriptions, by 許叔微 *Hü Shu wei.* Sung dyn.—P. med. 17.—S. K. K. X. 9.

589. 本事詩 *Pen shi shi,* by 孟棨 *Meng K'i.* T'ang dyn.—P. 23.—Reprinted in the W. P.

590. *Pen ts'ao fa hui.* See p. 49.

591. *Pen ts'ao hui pien.* See p. 54.

592. *Pen ts'ao kang mu.* See p. 54.

593. *Pen ts'ao ko kua.* See p. 48.

594. *Pen ts'ao meng ts'üan.* See p. 54.

595. *Pen ts'ao pie shuo.* See p. 47.

596. *Pen ts'ao shi i.* See p. 45.

597. *Pen ts'ao sing shi lei.* See p. 46.

598. *Pen ts'ao tsi yao.* See p. 53.

599. *Pen ts'ao yen i.* See p. 48.

600. *Pen ts'ao yen i pu i.* See p. 49.

601. *Pen ts'ao yin i.* See p. 45.

602. 彭祖服食經 *P'eng Tsu fu shi king.* A treatise on garments and food, by *P'eng Tsu.*—P. med. 15.—Sui lit.—I am not aware whether the mythical P'eng Tsu is meant who is reputed to have attained a fabulous longevity.—Mayers 561.

603. 蓬窗日錄 *P'eng ch'uang ji lu.* Ming dyn.—S. K. CXXVIII. 20.—Reprinted in the W. P.

604. 筆記 *Pi ki,* by *Sung K'i* (see No. 245). Sung dyn.—S. K. K. XIII. 16.

A work with the same title by *Ch'en Ki ju.* Ming dyn. (see No. 28).—S. K. CXXXII. 25.—See also S. K. CXLIII. 30.

605. 筆譜 *Pi pu.* A treatise on Pencils, by *Su I kien* (see No. 53).—P. 29.—S. K. K. XIII. 18.

606. 必效方 *Pi kiao fang,* by *Meng Shen* (see p. 45). T'ang dyn.—P. med. 14.

607. 秘訣 *Pi küe.* A treatise on the art of magic, by 左慈 *Tso Ts'z'.* 2nd cent.—P. 26.—Mayers 745.

608. 避暑錄 *Pi shu lu*, by 葉夢得 *Ye Meng te*, or 葉石林 *Ye Shi lin*. Sung dyn.—P. 36.—S. K. K. XIII. 20.

609. 碧雞漫志 *Pi ki man chi*. Sung dyn.—Wylie 203.

610. *P'i ya*. See p. 37.

611. 埤雅廣要 *P'i ya kuang yao*. An enlargement of the P'i ya, published in the Ming period.—S. K. CXLIV. 33.—The P. 28 quotes a work of a similar name, perhaps the same, 埤雅廣義 *P'i ya kuang i*.

612. 脾胃論 *P'i wei lun*. A treatise on the stomach, by *Tung Yüan* (see p. 48).—P. med. 16.

613. *Pie lu*. See p. 42 and p. 71.

614. 變化論 *Pien hua lun*, by *Yü Pao* (see No. 796).—P. 37.—Quoted in the King ts'u sui shi ki (q. v.).

615. 便民圖纂 *Pien min t'u tsuan*. Ming dyn.—P. 34.—Ming lit. (Agriculture).—S. K. CXXX. 5.

616. 辨惑論 *Pien huo lun*, by *Tung Yüan* (see p. 48).—P. med. 16.

617. 扁鵲方 *Pien Ts'iao fang*. Medical prescriptions of *Pien Ts'iao* (see note 12 [3]).—P. med. 13.

618. 賓退錄 *Pin t'ui lu*, by 趙與時 *Chao Yü shi*. Sung dyn.—P. 36.—S. K. K. XIII. 10.

619. 病原論 *Ping yüan lun*. A medical treatise, by 巢元方 *Ch'ao Yüan fang*. Beginning of the 7th cent.—P. med. 15.—S. K. K. X. 6.

620. 兵部手集方 *Ping pu shou tsi fang*, by 李絳 *Li Kiang*. 9th cent.—Biogr., T'ang shu 215.—P. med. 14.

621. 瓶花譜 *P'ing hua pu*. On plants growing in pots, by 張謙德 *Chang K'ien te*. Ming dyn.—S. K. CXVI. 36.—Reprinted in the T. X.

622. 瓶史 *P'ing shi*. On the cultivation of garden flowers, by 袁宏道 *Yüan Hung tao*. Ming dyn.—Biogr., Ming shi 288.—Reprinted in the T. X.

623. 瓶史月表 *P'ing shi yüe piao*. Calendar of garden flowers, by *T'u Pen tsun* (see No. 433).—Reprinted in the T. X.

624. 平泉草木記 *P'ing ts'üan ts'ao mu ki*. Account of the [illegible] productions of [illegible] ts'üan (Kien chou in Sz' ch'uan), [illegible] *Li Te yü*. [illegible]—849.—P. 29.—W. H. CCV. [illegible]—Reprint[illegible] II.

625. 白虎通 *Po hu t'ung.* A system of Confucian dogmatics, by *Pan ku* (see No. 941), died A. D. 92.—P. 32.—Wylie 127.—Reprinted in the H. W.

626. 白孔六帖 *Po K'ung liu t'ie.*—P. 31.—There is a collection of extracts, *Liu t'ie*, by 白居易 *Po Kü i* of the T'ang dyn. It was enlarged by 孔傳 *K'ung Ch'uan* of the Sung dyn.—S. K. K. XIV. 2.

627. 白沙集 *Po sha tsi*, by 陳獻章 *Ch'en Hien chang.* Ming dyn.—P. 39.—S. K. K. XVIII. 19.

628. 白獺髓 *Po t'a sui.* Sung dyn.—P. 38.—S. Y.

629. 白澤圖 *Po tse t'u.*—P. 25.—Sui lit.—Po tse is the name of a fabulous animal.

630. 百川學海 *Po ch'uan hio hai.* A collection of the productions of authors of note, made during the Sung dyn.—P. 36.—H. K. III. 1.

631. 百一選方 *Po i süan fang*, by 王璆 *Wang K'iu.* Sung dyn.—P. med. 20.—W. H. CCXXIII. 10.

632. 百感錄 *Po kan lu*, by 陳相 *Ch'en Siang*, a Taoist priest. Ming dyn.—P. 37.—S. K. CXXIV. 23.

633. 百病方 *Po ping fang.* A collection of medical prescriptions, by 胡洽居士 *Hu Hia (kü shi).*—P. med. 14.—Sui lit.

634. 泊宅編 *Po tse pien*, by 方勺 *Fang Cho.* Early part of the 12th cent.—P. 32.—Wylie 157.

635. 亳州牡丹史 *Po chou Mu tan shi.* A treatise on the Mu tan flower (Pæonia Moutan) of Po chou (An hui), by *Sie Feng siang* (see No. 530).—S. K. CXVI. 32.—Reprinted in the Ch. descr. part XI. 86 and T. CCLXXXVIII.

636. 博濟方 *Po tsi fang*, by 王袞 *Wang Kun.* Sung dyn.—P. med. 14.—S. K. K. X. 7.

637. 博物志 *Po wu chi.* Records of remarkable objects, by 張華 *Chang Hua*, A. D. 232—300, a native of 范陽 *Fan yang* (near the present Peking).—Biogr., Tsin shu 36.—P. 25.—Reprinted in the H. W.—Mayers 16.—Wylie 153.

638. Same title. Author 唐蒙 *T'ang Meng.* Tsin dyn.—P. 28.—S. K. CXLII. 42.

639. *Po ya.* See No. 383.

640. 樸欏繭 *Po lo kien.* An article on wild Silk produced from Oak trees. Last cent.—Reprinted in the Ch'eng te fu chi (see p. 88). See my article on Chinese silkworm trees, p. 7.

641. *Pu Pi t'an.* See No. 510.

642. 普濟方 *P'u tsi fang*, by *Chu Siao* or *Chou ting wang* (see p. 49).—P. med. 17.—Wylie 80.

643. *Rh ya.* See p. 34.

644. *Rh ya cheng i.* See p. 37.

645. *Rh ya i.* S. p. 37.

646. 塞上方 *Sai shang fang.*—P. med. 14.—Sung lit.

647. 三輔黃圖 *San fu huang t'u.* A description of the public buildings in Ch'ang an, the ancient metropolis during the Han. Author unknown.—P. 30.—Wylie 35.—It is reprinted in the H. W. collection and is quoted in the Nan fang ts'ao mu ch'uang (q. v.).

648. 三輔故事 *San fu ku shi.* Historical memoranda relating to the capital of the Han, written during the Tsin dyn.—P. 30.—Reprinted in the H. W.

649. 三峽記 *San Hia ki.* Account of the three great River Defiles. See Mayers p. 296.—Quoted in the T'ai p'ing kuang ki (q. v.).—A work with the same title was compiled in the Ming period (see Yu ming shan ki).

650. 三國志 *San kuo chi.* Memoir of the three kingdoms. A.D. 220—280, by 陳壽 *Ch'en Shou.* A.D. 233—297.—P. 23.—Wylie 13.

651. 三柳軒雜識 *San liu hien tsa shi.* Sung dyn.—S. Y.—Reprinted in the W. P.

651*a*. 三茅眞君傳 *San Mao chen kün ch'uan.* The story of *San Mao*, a Taoist Saint, who attained immortality, in the 3rd cent. B. C., according to the Shen sien ch'uan (No. 694). The reputed *Kou kü* mountain (see note 12*a*), called also ***Mao shan***, derives its name from this Saint.—P. 24.

652. 三蘇文集 *San Su wen tsi.* Writings of the three *Su.*—P. 38.—Mayers p. 301 (55).—The three Su are 蘇洵 *Su Sün*, and his sons 蘇軾 *Su Shi* (died 1101), and 蘇轍 *Su Chi* (died 1112).

653. 三才圖會 *San ts‘ai t‘u hui.* A comprehensive cyclopædia, illustrated by numerous wood-cuts, by 王圻 *Wang K‘i.* Published in 1607.—Wylie 149.—The botanical section of the work has little value, the accounts and drawings given of the various plants being generally incorrect.

654. 三齊畧記 *San ts‘i lio ki.* Tsin dyn.—Reprinted in the W. P.

655. 三秦記 *San Ts‘in ki.* On the three divisions of the State of Ts‘in (Mayers p. 303), by 辛氏 *Sin (shi).* 5th cent.—P. 32.—S. Y.—Quoted in the Ts‘i min yao shu (q. v.).

656. 三都賦 *San tu fu.* A panegyric on the three capitals of the three kingdoms, 吳 *Wu,* 蜀 *Shu,* and 魏 *Wei,* by 左思 *Tso Sz’.* 3rd cent.—Biogr., Tsin shu 92.—P. 36.—S. Y.

657. 三洞珠囊 *San tung chu nang.* A Taoist work, by 王懸河 *Wang Hüan ho.*—P. 35.—T. P.

658. 三因方 *San yin fang,* by 陳言 *Ch‘en Yen,* or 陳無擇 *Ch‘en Wu tse.* Sung dyn.—P. med. 17.—Tung i pao kien 5.—S. K. K. X. 11.

659. 三餘贅筆 *San yü chui pi.* Ming dyn.—S. K. CXXVII. 14.

660. 三餘帖 *San yü tien.* Sung dyn. (?)—T.

661. 三元延壽書 *San yüan yen shou shu,* by 李鵬飛 *Li P‘eng fei,* or 李廷飛 *Li T‘ing fei.* Yüan dyn.—Biogr., Yüan shi 197.—P. med. 20.—H. K II. 30.

662. 沙州記 *Sha chou ki.* Records of Sha chou (Kan su), by 段國 *Tuan Kuo.*—Quoted in the T. P. (10th cent.).

663. *Shan hai king.* See p. 37.

664. 山家清供 *Shan kia ts‘ing kung,* by 林洪 *Lin Hung.* Sung dyn.—P. 34.—S. Y.

665. 山谷刀筆 *Shan ku tao pi.* Writings of *Huang T‘ing kien* (see No. 202).—P. 38.—S. K. CLXXIV. 33.

666. 山居錄 *Shan kü lu,* by 王旻 *Wang Min.*—P. 33.—W. H. CCXVIII. 3.—12th cent. or earlier.

667. 山居四要 *Shan kü sz’ yao.* Apparently a work on agriculture, by 蔡汝懋 *Ts‘ai Ju mou.* Ming dyn.—P. 33.—H. K. II. 35.

668. *Shan si t‘ung chi.* See p. 88.

669. 山堂考索 *Shan t'ang k'ao su*, by 章俊卿 *Chang Tsun k'ing*. Sung dyn.—P. 36.—S. K. K. XIV. 6.

670. 山堂肆考 *Shan t'ang sz' k'ao*. A. D. 1595.—Wylie 150.

671. *Shan tung t'ung chi*. See p. 88.

672. 删繁方 *Shan fan fang*, by 謝士泰 *Sie Shi t'ai*.—P. med. 14.—Sui lit.

673. *Shan fan pen ts'ao*. See p. 45.

674. 膳夫錄 *Shan fu lu*, by 鄭望之 *Cheng Wang chi*. Sung dyn.

675. 傷寒直格 *Shang han chi ko*, by *Liu Ho kien* (see No. 812).—P. med. 21.—Tung i pao kien 6.

676. 傷寒類要 *Shang han lei yao*, by 平堯卿 *P'ing Yao k'ing*. Sung dyn.—P. med. 14.—W. H. CCXXIII. 13.

677. 傷寒六書 *Shang han liu shu*, by 陶華 *T'ao hua*. Ming dyn.—P. med. 21.—Tung i pao kien 6.

678. 傷寒論 *Shang han lun*. A medical work on Fever, by *Chang Chung king*. Han dyn.—See note 12 (5).—P. med. 13.

679. 傷寒明理論 *Shang han ming li lun*, by 成無己 *Ch'eng Wu ki*. Kin dyn.—P. med. 21.—Tung i pao kien 6.

680. 傷寒身驗方 *Shang han shen yen fang*, by 王珉 *Wang Min*. Tsin dyn.—Biogr., Tsin shu 65.—P. med. 14.

681. 傷寒書 *Shang han shu*, by 韓祇和 *Han Chi ho*. Sung dyn.—P. med. 21.—S. K. K. X. 8.

682. 傷寒總病論 *Shang han tsung ping lun*, by 龐安時 *P'ang An shi*, a celebrated physician of the Sung period.—Biogr., Sung shi 462 —P. med. 21.—S. K. K. X. 8.

683. 傷寒蘊要 *Shang han yün yao*, by 吳綬 *Wu Shou*. Ming dyn.—P. med. 21.

684. 尚書注疏 *Shang shu chu shu*. The Shang shu (the same as the Shu king, see p. 33), commented upon by 孔安■ *K'ung An kuo*. 2nd cent. B. C.—P. 23.—Mayers 323.

685. 芍藥譜 *Shao yao pu*. A treatise on the Shao yao flower (Pæonia albiflora), by 劉攽 *Liu Pin*, liter. name 貢父 *Kung fu*. First half of the 11th cent.—Biogr., Sung shi 319.—P. 28.—Reprinted in the T. CXV.—See also below No. 1067.

686. 召堯夫集 *Shao Yao fu tsi*. Writing of 召雍 *Shao Yung*, liter. name *Yao fu*. A. D. 1011—1077.—P. 39.—Mayers 594.

687. 攝生妙用方 *She sheng miao yung fang.* Hygienic prescriptions, by 張時徹 *Chang Shi ch'e.* Ming dyn.—P. med. 21.—S. K. CV. 21.

688. 神異記 *Shen i ki,* by 王浮 *Wang Fou.*—P. 34.—Mentioned in the T. P. (10th cent.), but probably of earlier date.

689. 神異經 *Shen i king.* A narrative treating of marvellous things and countries, by *Tung fang So* (see No. 464).—P. 25.—Wylie 153.—Reprinted in the H. W.

690. 神醫普救方 *Shen i pu kiu fang.*—P. med. 20.—S. Y. (Sung authors).

691. *Shen nung Pen ts'ao king.* See p. 27.

692. 神農食忌 *Shen nung shi ki.* Dietetics of the Emperor Shen nung (noxious food).—P. med. 15.—Sui lit.

693. 神農食經 *Shen nung shi king.* Emperor Shen nung's rules regarding food. See No. 710.

694. 神仙傳 *Shen sien ch'uan.* Biographies of Taoist Immortals, by *Ko Hung* (see No. 579).—P. 24.—Wylie 175.—Reprinted in the H. W.

695. 神仙服食方 *Shen sien fu shi fang.* Taoist dietetic prescriptions, by *Ko Hung* (see No. 579).—P. med. 15.—Sui lit.

696. 神仙服食經 *Shen sien fu shi king.* Taoist dietetics.—P. med. 15.—Sui lit.—Quoted in the Ts'i min yao shu (q. v.).

697. 神隱書 *Shen yin shu.* A Taoist work, by *K'ü sien* (see p. 53). Ming dyn.—P. 34.—S. K. CXLVII. 39.

698. *Shen si t'ung chi.* See p. 89.

699. 聖濟總錄 *Sheng tsi tsung lu.* Beginning of the 12th cent.—P. med. 15.—S. K. K. X. 8.

700. 聖祖御製幾暇格物編 *Sheng Tsu yü chi ki hia ko wu pien.* Observations of the Emperor K'ang hi (1662—1723) relating to natural history. Frequently quoted in modern Chinese works on botany. It is comprised in the Collection of K'ang hi's Memoirs 聖祖御製文集 *Sheng Tsu yü chi wen tsi* (S. K. K. XVIII. 45.—Wylie 189), and has been translated into French by Father Cibot. See Mémoires conc. les Chinois IV. p. 450.

701. 勝金方 *Sheng kin fang.*—P. med. 14.—Sui lit.

702. 澠水燕談錄 *Sheng shui yen t'an lu.* Close of the 11th cent.—Wylie 156.

703. 升庵集 *Sheng an tsi*, by 楊慎 *Yang Shen*. A.D. 1488—1559.—P. 39.—S. K. K. XVIII. 31.—Mayers 894.

704. *Sheng king fu*. See No. 1117.

705. *Sheng king t'ung chi*. See p. 88.

706. 食治通說 *Shi chi t'ung shuo*, by 婁居中 *Lou Kü chung*. Sung dyn.—P. med. 16.—W. H. CCXXIII. 7.

707. 食醫心鏡 *Shi i sin king*, by *Tsan Yin* (see No. 12). T'ang dyn.—P. med. 15.

708. 食忌 *Shi ki*. On dietetics (noxious food), by *Sun Sz' mo* (see p. 43).—P. med. 13.

709. *Shi kien pen ts'ao*. See p. 54.

710. 食經 *Shi king*. There are several works treating of food and bearing this title. One is attributed to the Emperor Shen nung. See No. 693.

Another is by *Huai nan wang* (see No. 193).—P. sub Shi sing pen ts'ao (see p. 46).

Another by 崔浩 *Ts'ui Hao*.—P. l. c.—Sui lit.

Another by 竺暄 *Chu Hüan*.—P. l. c.

Another by 李氏 *Li (shi)*.—P. med. 16.

The Shi king (I am not aware which of the above) is frequently quoted in the Ts'i min yao shu (q. v.).

711. *Shi liao pen ts'ao*. See p. 45.

712. *Shi sing pen ts'ao*. See p. 46.

713. *Shi wu pen ts'ao*. See p. 53.

714. 詩學大成 *Shi hio ta ch'eng*, by 毛直方 *Mao Chi fang*. End of the 13th cent.—P. 32.—Sh. Y.—H. K. VII. 36.

715. 詩話 *Shi hua*, by 王直方 *Wang Chi fang*. End of the 11th cent.—W. H. CCXCIX. 22.—See also No. 902.

716. 詩話總龜 *Shi hua tsung kui*. Sung dyn.—S. K. K. XX. 3.

717. *Shi king*. See p. 33.

718. 事類賦 *Shi lei fu*, by 吳淑 *Wu Shu*. Close of the 10th cent.—P. 36.—Wylie 146.

719. 事林廣記 *Shi lin kuang ki*, by 陳元靚 *Ch'en Yüan tsing*. Sung dyn.—P. 34.—Wylie 34.

720. 事詞類奇 *Shi ts'z' lei k'i*. Ming dyn.—S. K. CXXXVIII. 10.

721. 事文類聚 *Shi wen lei tsü*, by 祝穆 *Chu Mu.* Sung dyn.—P. 31.—S. K. CXXXV. 36.

722. 事物紀原 *Shi wu ki yüan.* A record of the origin of affairs and things, by 高承 *Kao Ch'eng.* Sung dyn.—P. 32.—S. K. K. XIV. 3.

723. *Shi yen yao yüan.* See p. 135.

724. 十洲記 *Shi chou ki*, or 海內十洲記 *Hai nei shi chou ki.* A fabulous description of ten insular kingdoms, by *Tung fang So* (see No. 464).—P. 30.—Wylie 153.—Reprinted in the W. P.

725. 十道志 *Shi tao chi.* Topography of the ten provinces (tao) into which China was divided in the 7th cent. Author 梁載言 *Liang Tai yen.* Close of the 9th cent.—W. H. CCIV. 3.

726. 十全博救方 *Shi ts'üan po kiu fang*, by 劉甫 *Liu Fu.*—P. med. 15.—Sung lit.

727. 十藥神書 *Shi yao shen shu*, by 葛可久 *Ko K'o kiu.* Ming dyn.—His biography is given in the I lin (No. 233).—P. med. 21.—H. K. VI. 47.

728. 世本 *Shi pen.* Ancient historical records from the Emperor Huang Ti down to Nan Wang, written towards the end of the Chou dynasty. *Sze ma Ts'ien*, the author of the Shi ki (2nd cent. B. C.), made use of this work.—P. 30.—Han lit.

729. 世說 *Shi shuo.* A collection of minor incidents from the Han to the Tsin, by 劉義慶 *Liu I k'ing.* 5th cent.—P. 30.—Wylie 151.

730. 使西域記 *Shi Si yü ki.* Journal of an Embassy to Western Asia in 1258 A. D., by 劉郁 *Liu Yu.*—P. 31.—See my Notes on Chin. mediaev. travellers, p. 57.

731. 使西域記 *Shi Si yü ki.* Account of an Embassy to Western Asia, by 陳誠 *Ch'en Ch'eng*, in 1415.—S. K. LXIV. 5.—H. K. V. 21.—See my notes on this journey in "China Review" IV. 314.

732. 石湖集 *Shi hu tsi*, by *Fan Ch'eng ta* (see No. 388).—P. 39.—Wylie 202.

733. 石林燕語 *Shi lin yen yü*, by *Ye Meng te* (see No. 608).—S. K. K. XIII. 20.

734. 釋 名 *Shi ming.* An ancient explanation of words, by 劉 熙 *Liu Hi.* Post. Han dyn.—P. 28.—S. K. K. IV. 16.—Reprinted in the H. W.

735. 尸 子 *Shi tsz'.* Writings of 尸 佼 *Shi Kiao,* a philosopher about 280 B. C.

736. 拾 遺 記 *Shi i ki.* A record of matters omitted in the annals of the empire, by 王 嘉 *Wang Kia,* liter. name 子 年 *Tsz' nien.* 4th cent.—Biogr., Tsin shu 95.—P. 24.—Wylic 164.—Reprinted in the H. W.

737. 試 效 *Shi hiao,* by *Tung Yüan* (see p. 48).—P. med. 16.

738. 是 齋 指 迷 方 *Shi chai chi mi fang,* by 王 貺 *Wang Huang.* Sung dyn.—P. med. 17.—S. K. K. X. 9.

739. 士 農 必 用 *Shi nung pi yung.* A treatise on Agriculture. Ming dyn., perhaps Yüan dyn.—Frequently quoted in the Nung cheng ts'üan shu (q. v.).

740. 史 記 *Shi ki.* Historical Record by the celebrated historiographer 司 馬 遷 *Sze ma Ts'ien.* B. C. 163—85.—P. 23.—Wylie 14.—Mayers 600.

741. 壽 親 養 老 書 *Shou ts'in yang lao shu* (the first character is sometimes replaced by 奉 *Feng*), by 陳 直 *Ch'en Chi.* Sung dyn.—P. med. 20.—S. K. K. X. 7.

742. 壽 域 神 方 *Shou yü shen fang,* by *K'ü sien* (see p. 53).—P. med. 20.

743. *Shou shi t'ung k'ao.* See p. 84.

744. 獸 經 *Shou king.* A treatise on Quadrupeds, by 黃 省 曾 *Huang Sheng ts'eng.* Ming dyn.—P. 28.—Wylie 121.

745. 蜀 志 記 *Shu chi ki.* A description of Shu (the present Sz' ch'uan).—Quoted in the Ts'i min yao shu (q. v.).

746. 蜀 中 廣 記 *Shu chung kuang ki.* This seems to be an account of the province of Sz' ch'uan. Author 曹 學 *Ts'ao Hio.* Ming dyn.—S. K. K. VII. 26.

747. 蜀 記 *Shu ki.*—Quoted in the Ts'i min yao shu (q. v.).

747a. Shu Pen ts'ao. See p. 46.

748. 蜀 地 志 *Shu ti chi.*—P. 31.—Perhaps the same as the 蜀 志 *Shu chi* mentioned in the Sui lit.

749. *Shu tu fu.* See No. 656.

750. 蜀王本紀 *Shu wang pen tsi.* Ancient historical records of Shu (Sz' ch'uan), by *Yang Hiung* (see No. 106), who was a native of Shu.—S. Y.—T. P.

751. 述征記 *Shü cheng ki*, by 郭緣生 *Kuo Lü sheng* of the Liu Sung dyn. (5th cent.).—P. 34.—S. Y.—Sui lit.

752. 述異記 *Shu i ki.* A collection of notes on the Wonderful, by 任昉 *Jen Fang.* Beginning of the 6th cent.—P. 34.—But the work now extant with this title has additions of later date and is not the original.—Wylie 154.

The P. l. c. quotes another work with the same title, which is the production of 祖冲之 *Tsu Ch'ung chi*, who lived in the 5th cent.—His biogr. Nan Ts'i shu 52.—S. K. CXLII. 43.

753. *Shu king.* See p. 33.

754. 菽園雜記 *Shu yüan tsa ki*, by 陸文量 *Lu Wen liang*, or 陸容 *Lu Yung.* Ming dyn.—P. 36.—S. Y.—Reprinted in the W. P.

755. 雙槐歲鈔 *Shuang huai sui ch'ao.* Ming dyn.—S. K. CXLIII. 16.

756. 水經 *Shui king.* The Water Classic, a work on the rivers of China, by 桑欽 *Sung K'in.* Beginning of the Christian era.—Reprinted in the H. W.—It has been commented upon by 酈道元 *Li Tao yüan* in the 5th cent.—Biogr. Wei shu 89.—P. 29.—Wylie 43.

757. 水南翰記 *Shui nan han ki*, by 李貫 *Li Kuan.* Ming dyn.—H. K. V. 18.

758. 水東日記 *Shui tung ji ki*, by 葉盛 *Ye Sheng.* 15th cent.—P. 32.—Wylie 159.

759. 水雲錄 *Shui yün lu*, by *Ye Meng te* (see No. 608). Sung dyn.—P. 33.—A work with the same title by *Yang P'u* of the Ming is noticed in the S. K. CXXX. 4.

760. 瑞竹堂經驗方 *Shui chu t'ang king yen fang.* A collection of medical prescriptions, by 薩謙齋 *Sa k'ien ts'i.*—P. med. 18.—In the S. K. K. X. 14 the name of the author reads 薩理彌實 *Sa li mi shi* (probably a Mongol name). First half of the 14th cent.

761. 瑞應圖記 *Shui ying t'u ki*, by 孫柔之 *Sun Jou chi.* Liang dyn.—P. 33.—Sui lit.—W. H. CCXIV. 4.

A work with the title *Shui ying t‘u*, by 庾溫 *Yü Wen*, published towards the end of the 5th cent., is noticed in the S. Y.

762. 說郛 *Shuo fu*, by 陶宗儀 *T‘ao Tsung i*, liter. name 九成 *Kiu ch‘eng*. Yüan dyn., or early in the Ming.—P. 31.—Wylie 136.—Mayers 712.

763. 說文解字 *Shuo wen kie tsz‘*. An ancient dictionary of the Chinese characters, by 許慎 *Hü Shen*. Close of the first cent. The work was laid before the Emperor An Ti A. D. 121. A commentary upon it was written by 徐鍇 *Sü K‘iai* of the T‘ang.—P. 27.—Wylie 8.—Mayers XXIII.—S. K. K. IV. 19.

764. 說文字原 *Shuo wen tsz‘ yüan*. On the origin of the Chinese characters, by *Chou Pi* (see No. 474).—P. 27.—But the S. K. K. IV. 22 attributes the work to *Chou Po k‘i* (see No. 474).

765. 說苑 *Shuo yüan*. A collection of anecdotes from ancient Chinese History, by *Liu Hiang* (see No. 211).—P. 35.—S. K. K. IX. 2.—Reprinted in the H. W.

766. 西河舊事 *Si ho kiu shi*. Records relating to Si ho (Fen chou fu, Shan si).—Mentioned in the T‘ang lit., but seems to date from an earlier period.

767. 西湖志 *Si hu chi*. Description of the Si hu lake near Hang chou fu, by 田汝成 *T‘ien Ju ch‘eng*. Ming dyn.—P. 32.—S. K. K. VII. 19.

768. 西溪叢語 *Si k‘i ts‘ung yü*, by 姚寬 *Yao K‘uan*. Middle of the 12th cent.—P. 36.—Wylie 128.

769. 西京雜記 *Si king tsa ki*. A record of incidents at Ch‘ang an, the Chinese metropolis during the Han, by 劉歆 *Liu Hin*, who lived about our era.—Reprinted in the H. W.—Others believe that *Ko Hung* (see note 12 [8]) was the author of it.—The S. K. K. ascribes the authorship of the work to *Wu Kün* (see No. 806).—Quoted in the Ts‘i min yao shu (q. v.).—P. 31.—Wylie 151.

770. 西樵野記 *Si ts‘iao ye ki*, by 侯甸 *Hou Tien*. Ming dyn.—P. 35.—S. K. CXLIV. 10.

771. 西域諸國志 *Si yü chu kuo chi*. Account of Western countries. 5th cent., perhaps earlier.—Quoted in the Ts‘i min yao shu (q. v.).—T. P.

772. 西域記 *Si yü ki.* Account of the countries of the West, by the Buddhist monk 元奘 *Yüan Chuang* (or 玄奘 *Hüan Ts‘ang*). First half of the 7th cent.—Translated by Stan. Julien.

773. *Si yü t‘u chi.* See p. 95.

774. 席上腐談 *Si shang fu t‘an.* A Taoist work, by 俞琰 *Yü Yen.* Sung dyn.—P. 37.—S. K. K. XIV. 46.—Reprinted in the W. P.

775. 席延賞方 *Si Yen shang fang.* Medical prescriptions, by *Si Yen shan.*—P. med. 13.—Sung lit.

776. 湘中記 *Siang chung ki.* (Ancient *Siang* in the present Hu nan). Tsin dyn.—W. H. CCVI. 2.—Reprinted in the W. P.

777. 湘山野錄 *Siang shan ye lu.* Sung dyn.—S. K. K. XIV. 20.

778. 相貝經 *Siang pei king,* by 朱仲 *Chu Chung.* Han dyn.—P. 28.—H. K. III. 45.—Mayers 82 (?).—Reprinted in the H. W.

779. 橡繭識語 *Siang kien shi yü.* On wild Silk produced from Oaks. Present dyn.—See my article on Chinese Silkworm trees, p. 7.

780. 襄沔記 *Siang Mien ki.*—P. 32.—T‘ang lit.

781. 小品方 *Siao p‘in fang,* by 陳延之 *Ch‘en Yen chi.*—P. med.—Sui lit.

782. 小兒眞訣 *Siao rh chen küe,* by 錢乙 *Ts‘ien I,* liter. appellation 仲陽 *Chung yang,* Court physician. Close of the 11th cent.—Biogr. Sung shi 462.—P. med. 21.—Wylie 84.—Tung i pao kien 5.

783. 小兒方 *Siao rh fang.* Medical prescriptions against infantile complaints, by 張渙 *Chang Huan.*—P. med. 22.—Sung lit.

784. 小爾雅 *Siao Rh ya.* A dictionary similar to the Rh ya (q. v.), by 孔鮒 *K‘ung Fu,* a descendant of Confucius, known also under the name of 孔叢子 *K‘ung ts‘ung tsz‘.* He lived about B. C. 212.—P. 28.—Han. lit.—S. K. XLIII. 1.—The Siao rh ya, reprinted in the H. W., was commented upon by 李軌 *Li Kui* of the Han.

785. 仙傳方 *Sien ch‘uan fang.* Taoist medical prescriptions, by 張三丰 *Chang Sun feng.* Beginning of the 15th cent.—P. med. 19.—Ming lit.

786. 新論 *Sin lun.* New reflections, by 陸賈 *Lu Kia,* about 200 B. C.—Reprinted in the H. W.—Mayers 437.

There are several works bearing the same title. The S. Y. notices a *Sin lun* by 桓譚 *Huan T'an.* First cent. A. D.—The H. W. reproduces besides Lu Kia's work a *Sin lun* by 劉勰 *Liu Hie.* Liang dyn.

787. 新書 *Sin shu.* Essays on the Confucian doctrine, by 賈誼 *Kia I,* born ca. 200 B. C.—P. 35.—Wylie 67.—Mayers 245.—Reprinted in the H. W.

788. 心法 *Sin fa.* A medical (Taoist) work, by *Tan K'i* (see p. 49).—P. med. 17.—Tung i pao kien 6.

The P. quotes ibidem a discussion on Tan Ki's Sin fa by 程充 *Ch'eng Ch'ung,* and another by 楊珣 *Yang Sün.* Both probably of the Ming.

789. 星槎勝覽 *Sing ch'a sheng lan.* An account of peregrinations at sea, by 費信 *Fei Sin.* A. D. 1436.—P. 30.—Ming lit.

790. 性理大全 *Sing li ta ts'üan.* A collection of philosophical works. A. D. 1415.—P. 34.—Wylie 69.

791. 修眞秘旨 *Siu chen pi chi.* A Taoist work. Sung dyn.—P. 26.—T. P.

792. 修眞秘訣 *Siu chen pi küe.* A Taoist work, by 潁陽子 *Ying Yang tsz'.*—P. 26.—Sung lit.

793. 神珍方 *Siu chen fang,* by *Chou ting wang* (see p. 49).—P. med. 18.

794. 神珍小兒方 *Siu chen siao rh fang,* by 徐用宣 *Sü Yung süan.* Ming dyn.—P. med. 22.—S. K. CV. 16.

795. 瑣碎錄 *So sui lu.*—P. 37.—Author 溫革 *Wen K'o.* Sung dyn.—W. H.—The S. Y. gives as author of the work 陳日華 *Ch'en Ji hua* of the Sung.

796. 搜神記 *Sou shen ki.* A collection of legends, by 于寶 *Yü Pao,* who wrote about A. D. 320.—P. 24.—Wylie 154.—Reprinted in the H. W.

The 搜神後記 *Sou shen hou ki* is a continuation of the preceding by 陶潛 *T'ao Ts'ien.* A. D. 365—427.—Wylie l. c.—Mayers 713.

797. 蘇沈良方 *Su Ch'en liang fang.* Collection of famous recipes, by *Ch'en Kua* (see No. 510), with additional matters by *Su Tung p'o* (see No. 991).—P. med. 15.—Wylie 78.

798. *Su chou fu chi.* See p. 89.

799. 蘇黃手簡 *Su Huang shou kien.* Writings of *Su Shi* (see No. 991) and *Huang T'ing kien* (see No. 202).—P. 38.—Mayers 620.

800. 溯洄集 *Su hui tsi,* by 王履 *Wang Li.* Second half of the 14th cent.—P. med. 18.—Wylie 80.

801. 續漢書 *Sü Han shu.* Appendix to the Han histories, by 謝承 *Sie Ch'eng.* Period of the three kingdoms.—P. 30.—S. Y.

802. *Sü Pi t'an.* See No. 510.

803. 續博物志 *Sü Po wu chi.* A supplement to the Po wu chi (see No. 637), by 李石 *Li Shi.* Middle of the 12th cent.—P. 28.—Wylie 154.

804. 續水經 *Sü Shui king.* A supplement to the Shui king (see No. 756), by 陸蘊 *Lu Yin.* T'ang dyn.—P. 30.—S. Y.

805. 續搜神記 *Sü Sou shen ki,* by 陶 *T'ao.*—P. 35.—I think this is the same as the Sou shen hou ki (see No. 796).

The S. Y. quotes a *Sü Sou shen ki* of the Wu tai period.

806. 續齊諧記 *Sü Ts'i hiai ki.* A supplement to the Ts'i hiai ki (see No. 927), by 吳均 *Wu Kün* of the Liang dyn.—Reprinted in the H. W.—P. 24.—Wylie 154.

807. 續韻府群玉 *Sü Yün fu k'ün yü.* Supplement to the dictionary Yün fu k'ün yü (see No. 1141), by 包瑜 *Pao Yü.* Ming dyn.—P. 27.—S. K. CXXXVII. 29.

808. 徐文伯方 *Sü Wen po fang.* Medical prescriptions of *Sü Wen po,* a celebrated physician in the middle of the 5th cent.—P. med. 13.—Sui lit.—Biogr. Nan shi 52.

809. 宣政錄 *Süan cheng lu,* by 江萬里 *Kiang Wan li.* Sung dyn.—P. 26.—H. K. III. 10.—Biogr. Sung shi 418.

810. *Süan hua kien chi.* See p. 88.

811. 宣和北苑貢茶錄 *Süan ho Pei yüan kung ch'a lu.* An account of the preparation of tea in Kien an (the present prefecture Kien ning fu, Fu chou), by 熊蕃 *Hiung Fan.* Sung dyn.—S. K. K. XII. 21.

812. 宣明方 *Süan ming fang*, by 劉完素 *Liu Huan su*, a celebrated physician of the Kin.—Biogr. Kin shi 131.—He was a native of Ho kien.—P. med. 16 styles him 劉河閒 *Liu Ho kien*.—Tung i pao kien 6.

813. 隋煬帝開河記 *Sui Yang Ti K'ai ho ki*.—P. 33.—Sung lit.—Probably a memoir on the Yellow River, referring to the time of the Emperor Yang Ti of the Sui (A. D. 605—617).

814. 隋書 *Sui shu*. History of the Sui dynasty, A. D. 589—618, by 魏徵 *Wei Cheng*. 7th cent.—P. 23.—Wylie 13.

815. 隨身備急方 *Sui shen pei ki fang*, by 張文仲 *Chang Wen chung*.—Biogr. T'ang shu 204.—P. med. 13.—T'ang lit.

816. 遜志齋集 *Sun chi chai tsi*, by 方孝孺 *Fang Hiao ju*. Ming dyn.—P. 38.—S. K. K. XVIII. 13.

817. 筍譜 *Sün pu*. Treatise on Bamboo sprouts, by the Buddhist priest *Tsun ning* (see No. 67).—Wylie 122.—Reprinted in the T. CLXXXVII.

818. 荀子 *Sün tsz'*. A philosophical work, by 荀況 *Sün K'uang*. 3rd cent. B.C. Commented upon by 楊倞 *Yung Liang*. T'ang dyn.—P. 23.—Wylie 66.—S. K. K. IX. 1.

819. 宋史 *Sung shi*. History of the Sung dynasty, A.D. 930—1280, by *T'o t'o* (see No. 455).—P. 30.—Wylie 18.

820. 宋書 *Sung shu*. History of the (Liu) Sung dynasty, A.D. 420—478, by 沈約 *Ch'en Yo*. 5th cent.—P. 23.—Wylie 13.

821. 宋徽宗聖濟經 *Sung Hui Tsung sheng tsi king*. A medical treatise by the Sung Emperor *Hui Tsung*. A. D. 1101—1126.—P. med. 15.—W. H. CCXXII. 7.

822. 宋徽宗詩 *Sung Hui Tsung shi*.—P. 38.—Poems by the same Emperor.

823. 嵩高山記 *Sung kao shan ki*. Account of the Sung kao mountain (see No. 824). 5th or 6th cent.—P. 32.—T. P.

824. 嵩山記 *Sung shan ki*. Account of the Sung mountain (see Appendix 43), by 盧修 *Lu Hiu*. T'ang dyn.—P. 25.—T'ang lit.

But a treatise with this title existed at an earlier date, as I find it quoted in the Kuang chou ki (q. v.).—The Yu ming shan ki reproduces a *Sung shan ki* of the Ming period.

825. 松窗雜記 *Sung ch'uang tsa ki*, by 李濬 *Li Sün*, styled also 李渤 *Li P'o*, or 韋濬 *Wei Sün*. First half of the 9th cent.—Biogr. T'ang shu 222.—P. 32.—S. K. K. XIV. 15.

The W. P. reprints an article with the above title. Author 杜荀鶴 *Tu Sün ho*. T'ang dyn.

826. 松漠紀聞 *Sung mo ki wen*. Historical memoranda regarding the Kin dynasty, by 洪皓 *Hung Hao*, A. D. 1090—1155, who was sent on an embassy to the Kin.—Wylie 26.—Mayers 198.—In the P. 33 the name of the author of this narrative reads 洪邁 *Hung Mai*. But this was the son of Hung Hao.

827. *Sz' ch'uan t'ung chi*. See p. 91.

828. *Sz' i kuan*. See p. 95.

829. *Sz' k'u ts'üan shu kien ming mu lu*. See p. 134.

830. *Sz' k'u ts'üan shu tsung mu*. See p. 134.

831. 四民月令 *Sz' min yüe ling* (the second character of the title reads 時 *shi* in some quotations), by 崔寔 *Ts'ui Shi*. After Han.—P. 33.—S. Y.—Apparently a work on agriculture, as can be judged from the quotations in the Ts'i min yao shu.

832. *Sz' sheng pen ts'ao*. See p. 45.

833. 四時類要 *Sz' shi lei yao*. A work on agriculture, quoted in the Nung cheng ts'üan shu (q. v.). Yüan or Ming period.

834. 四時寶鏡 *Sz' shi pao king*. T'ang dyn.—S. Y.

835. *Sz' shi tsuan yao*. See p. 80.

836. *Sz' t'i ts'ing wen kien*. See p. 105.

837. 大康地記 *Ta k'ang ti ki*. Tsin dyn.—S. Y.

838. *Ta Kuan Pen ts'ao*. See p. 47.

839. 大明會典 *Ta Ming hui tien*. Description of the Chinese government during the Ming, published in 1509.—P. 31.—Wylie 56.

840. *Ta Ming I t'ung chi*. See p. 87.

841. *Ta Ts'ing I t'ung chi*. See p. 87.

842. 大業拾遺錄 *Ta Ye shi i lu* (apparently referring to the reign of Ta Ye, 605—607), by 杜寶 *Tu Pao*. T'ang dyn.

The S. K. CXLIII. 4 mentions a work 大業拾遺記 *Ta Ye shi i ki*, by *Yen Shi ku* (see No. 270).

843. 打棗譜 *Ta tsao pu*. A treatise on Jujubes, by 柳貫 *Liu Kuan*. Yüan dyn.—Biogr. Yüan shi 181.—This treatise is reprinted in the Ch. descr. part XV. 5 and T. CCXXIII.

844. 太和山志 *T'ai ho shan chi.* Description of the *T'ai ho* mountain (see Appendix 48), by 田玉 *T'ien Yü.* Close of the 16th cent.—P. 31.—S. K. LXXVI. 11.—Wylie 44.

845. *T'ai p'ing Huan yü ki.* See p. 86.

846. 太平廣記 *T'ai p'ing kwang ki.* An Encyclopædia similar in character to the next, containing minor articles by the same author *(Lo Shi).*—P. 24.—S. K. K. XIV. 33.

847. 太平御覽 *T'ai p'ing yü lan.* A great Encyclopædia, published by 李昉 *Li Fang.* A. D. 983.—P. 31.—Wylie 146.—See also p. 135.

848. 太白陰經 *T'ai po yin king.* A treatise on military tactics, by 李筌 *Li Ts'üan.* Middle of the 8th cent.—P. 36.—Wylie 73.

849. 太倉公方 *T'ai ts'ang kung fang.* Recipes of *T'ai ts'ang kung.*—See note 12 (4).—P. med. 13.

850. 太清石壁記 *T'ai ts'ing shi pi ki.* A Taoist work.—P. 26.—T'ang lit.

851. 太清草木記 *T'ai ts'ing ts'ao mu ki.*—P. 25.—A treatise of a similar title by *T'ao yin kü* (see p. 43) is noticed in the Sui lit.

852. *T'ai wan fu chi.* See p. 90.

853. 泰山記 *T'ai shan ki.* Account of the celebrated *T'ai* mountain (see Appendix 51). This is occasionally quoted in Chinese botanical works. But there are several records with the above title by authors of the Han, Sung, Ming, etc. See Yu ming shan ki.

854. 丹房鑑源 *Tan fang kien yüan.* An alchemistic work, by 獨孤滔 *Tu Ku t'ao.*—P. 25.—Sung lit.

855. 丹溪心法 *Tan k'i sin fa,* by *Yang Sün* (see No. 788).—P. med. 17.

856. 丹溪心法附錄 *Tan k'i sin fa fu lu,* by 方廣 *Fang Kuang.* Ming dyn.—P. 17.—S. K. CV. 24.

857. 丹溪纂要 *Tan k'i tsuan yao,* by 盧和 *Lu Ho.* Ming dyn. See p. 54.—P. med. 17.

858. 丹砂秘訣 *Tan sha pi küe,* by 張果 *Chang Kao.* Sung dyn.—P. 29.—The author is noticed S. K. K. X. 10.

859. 丹臺錄 *Tan t'ai lu,* by 青霞子 *Ts'ing Hia tsz',* a Taoist scholar of the Sung.—P. 25.—W. H. CCXXII. 7.—Sung lit.

860. 丹鉛錄 *Tan yüan lu*, by *Yang Shen* (No. 703).—P. 33.—Wylie 130.

861. 談圃 *T'an pu*, by 孫升 *Sun Sheng*. Sung dyn.—P. 35.—S. Y.

862. 談藪 *T'an sou*, by 龐元英 *P'ang Yüan ying*. Sung dyn.—P. 35.—S. K. CXLIII. 8.—There are several works with the same title by different authors.

863. 談苑 *T'an yüan*, by 楊億 *Yang I*. Beginning of the 11th cent.—P. 26.—Wylie 147.

864. 坦齋筆衡 *T'an chai pi heng*, by 邢 *Hing*.—P. 38.—This is apparently the author 邢凱 *Hing K'ai* of the Sung, mentioned by Wylie 130 sub *T'an chai t'ung pien*.

865. 唐會要 *T'ang hui yao*. Compilation of State matters during the T'ang, by 王溥 *Wang P'u*. 10th cent.—P. 30.—Wylie 56.

866. *T'ang Pen ts'ao*. See p. 44.

867. 唐書 *T'ang shu*. History of the T'ang dynasty, A. D. 618—907, by 歐陽修 *Ou yang Siu*. 11th cent.—P. 24.—Wylie 13.—See also p. 134.

868. 唐小說 *T'ang siao shuo*. Miscellaneous narratives referring to the T'ang period.—P. 37.—W. H. CXC. 1. (?)

869. 唐武后別傳 *T'ang Wu Hou pie ch'uan*. Narrative of the Empress Wu of the T'ang, in the latter half of the 7th cent.—P. 24.—Mayers 862.

870. 唐韻 *T'ang yün*. A Dictionary, by 孫愐 *Sun Mien*, published in 750.—P. 27.—"China Review" IV. 340.

871. *T'ang i pen ts'ao*. See p. 48.

872. 得效方 *Te hiao fang*, by 危亦林 *Wei I lin*. A. D. 1337.—P. med. 19.—Wylie 80.

873. 登眞隱訣 *Teng chen yin küe*. A Taoist work, by *T'ao yin kü* (see p. 43).—P. 26.

874. 帝京景物畧 *Ti king king wu lio*. A description of Peking. A. D. 1635.—S. K. LXXVII. 23.

875. 帝王世紀 *Ti wang shi ki*. History of the ancient Emperors, by *Huang ƒu Mi* (see No. 271).

876. 地鏡圖 *Ti king t'u*. Liang dyn., or earlier.—P. 35.—Sui lit.

877. 苕溪漁隱叢話 *T'iao k'i Yü yin ts'ung hua*, by 胡仔 *Hu Tsz'*. Sung dyn.—P. 37.—S. K. CXCV. 37.

878. 鐵圍山叢談 *T'ie wei shan ts'ung t'an*, by 蔡絛 *Ts'ai T'iao*. First half of the 12th cent.—P. 36.—Wylie 157.

879. 鐵厓集 *T'ie yai tsi*, by 楊維禎 *Yang Wei cheng*. Yüan dyn.—P. 38.—S. K. K. XVII. 30.

880. 滇中茶花記 *Tien chung ch'a hua ki*. A treatise on the Camellia flower of the province of Yün nan, by 馮時可 *Feng Shi k'o*. Ming dyn.—See Yu ming shan ki.

880*a*. 滇海虞衡志 *Tien hai yü heng chi*. An account of the geographical features, natural productions, etc. of Southern China, especially Yün nan, by 檀萃 *T'an Ts'ui* (see No. 183). Present dyn., second half of the last cent.—T'an Ts'ui appears as the author of a treatise on the Chinese aborigines in the C. T. The Tien hai yü heng chi is frequently quoted in the Ch. with reference to Southern Chinese plants.

881. *Tien ki*. See p. 92.

882. *Tien nan Pen ts'ao*. See p. 75.

883. 滇南雜記 *Tien nan tsa ki*. An account of the province of Yün nan. Beginning of the 17th cent.—S. K. LXXVII. 19.

883*a*. 滇太華山記 *Tien T'ai hua shan ki*. An account of the T'ai hua mountain in Yün nan (see Appendix 49). Ming dyn.—Yu ming shan ki.

884. 天香傳 *T'ien kiang ch'uan*, by 丁謂 *Ting Wei*, who, according to the W. H. CCXXV. 12, was a Taoist author in the beginning of the 11th cent.—P. 26.

885. 天工開物 *T'ien kung k'ai wu*. A treatise on Technology, by 宋應星 *Sung Ying sing*. Second edition in 1637.—Stan. Julien has translated many articles from this work.

885*a*. 天目山志 *T'ien mu shan chi*. Description of the T'ien mu mountain (see Appendix 55), by 徐嘉泰 *Sü Kia t'ai*. Beginning of the 17th cent.—S. K. LXXVI. 17.

886. 天寶單方圖 *T'ien Pao tan fang t'u*.—P. med. 13.—I understand that the book was published during the period T'ien Pao. A. D. 742—56.

887. 天彭牡丹譜 *T'ien p'eng Mu tan pu*. A treatise on Pæonia Moutan, by 陸游 *Lu Yu*. A. D. 1125—1210.—Mayers

446.—S. K. CXVI. 31.—Reprinted in the Ch. descr. part XI. 73 and T. CCLXXXVII.

888. 天台縣志 *T'ien t'ai hien chi.* Description of the district of T'ien t'ai (Che kiang). Ming dyn.—S. K. LXXIV. 24.

889. 天台山記 *T'ien t'ai shan ki.* An account of the T'ien t'ai mountain (Che kiang, see Appendix 56), celebrated in Chinese Buddhism and Taoism. Author 徐靈府 *Sü Ling fu*, a Taoist priest of the T'ang dyn.—W. H. CCVI. 2.

There are several works with the same title compiled by authors of the Ming. There is also a 天台山志 *T'ien t'ai shan chi* by a Taoist priest of the Yüan.—S. K. LXXVI. 2.

890. *T'ien tsin hien chi.* See p. 88.

891. 田家五行 *T'ien kia wu king.* Ming dyn.—H. K. II. 35.

892. 桯史 *T'ing shi.* Sung dyn.—Reprinted in the W. P.—S. K. K. XIV. 25.

893. 多能鄙事 *To neng pi shi*, by 劉伯溫 *Liu Po wen*, or 劉基 *Liu Ki.* A. D. 1311—1375.—P. 34.—Mayers 409.—S. K. CXXX. 2.

894. 痘疹證治 *Tou chen cheng chi*, by *Li Yen wen* (see No. 258).—P. med. 22.

895. 痘疹管見 *Tou chen kuan kien*, by 高武 *Kao Wu.* Ming dyn.—P. med. 22.—S. K. CV. 30.

896. 痘疹論 *Tou chen lun.* A treatise on Small-pox, by 聞人規 *Wen Jen kui.* A. D. 1323.—P. med. 22.—Wylie 83.

897. 投荒錄 *T'ou huang lu.*—T'ang dyn.—S. Y.

898. 雜錄 *Tsa lu*, by *T'ao yin kü* (see p. 43).—P. 35.

899. 雜俎 *Tsa tsu.* Ming dyn.—S. K. CXXXVII. 40.—But a treatise with this title existed much earlier.

900. *Tsa wu king shu.* See No. 1049.

901. 雜陰陽書 *Tsa yin yang shu.*—Mentioned in the Han lit.

902. 蔡氏詩話 *Ts'ai shi shi hua.*—P. 39.—The name of the author is 蔡寬夫 *Ts'ai Kuan fu*, or 蔡居厚 *Ts'ai Kü hou.*—Biogr. Sung shi 356.—K. XVIII. 18.

903. *Ts'ai yao lu.* See p. 40.

904. 參同契 *Ts'an t'ung k'i.* A commentary on the I king, giving information on Chinese Alchemy, by 魏伯陽 *Wei Po yang*, a celebrated Taoist philosopher and alchemist, about the middle

of the second cent. — P. 36. — Wylie 175. — Reprinted in the H. W.

905. 倉頡解詁 *Ts'ang Hie kie ku.*—P. 27.—Several treatises with a similar title are noticed in the Han lit.—*Ts'ang Hie* is reputed as the inventor of the art of writing, in the mythical period of antiquity.—Mayers 750.

906. 造化指南 *Tsao hua chi nan.* A Taoist work on Alchemy, by 土宿眞君 *T'u Su chen kün.*—P. med. 16.—Sung dyn.?—See also No. 980.

907. 造化權輿 *Tsao hua kuan yü*, by 趙自勔 *Chao Tsz' mien.* T'ang dyn.—P. 37.—W. H. CCXIV. 7.

908. 草花譜 *Ts'ao hua pu.* A treatise on herbaceous garden plants, by 高濂 *Kao Lien.* Ming dyn. Seems to belong to the 17th cent.—Ming lit.—Reprinted in the T. CXXI. and CLXXIII.

909. 草廬集 *Ts'ao lü tsi.* Writings of 吳澄 *Wu Ch'eng.* A. D. 1249—1333. Pseudonym *Ts'ao lü.*—P. 38.—Mayers 859.

910. 草木子 *Ts'ao mu tsz'*, by 葉世傑 *Ye Shi kie*, or 葉子奇 *Ye Tsz' k'i.* A. D. 1378.—P. 35.—Wylie 134.

911. 草藥圖 *Ts'ao yao t'u.* Drawings of medicinal plants, by 羅思舉 *Lo Sz' kü.* Present dyn.—Quoted in the Ch.

912. 曹瞞傳 *Ts'ao Man ch'uan.* Biography of *Ts'ao Ts'ao*, the founder of the Wei dynasty, died A. D. 220. Written during the San kuo period.—Mayers 3.—T. P.

913. 曹子建集 *Ts'ao tsz' kien tsi.* Writings of 曹植 *Ts'ao Chi*, A. D. 192—232. third son of the great usurper *Ts'ao Ts'ao* (see No. 1024).—P. 37.—Mayers 759.—S. K. K. XV. 3.

914. 集效方 *Tsi hiao fang*, by 閻孝忠 *Yen Hiao chung.* Beginning of the 12th cent.—P. med. 19.—Wylie 84.

915. 集異記 *Tsi i ki.* A historical work, by 薛用弱 *Sie Yung jo.* Early part of the 9th cent.—P. 34.—Wylie 155.

916. 集簡方 *Tsi kien fang.* Medical prescriptions, by 瀕湖 *Pin hu*, or *Li Shi chen* (see p. 54).—P. med. 19.—S. K. K. X. 18.

917. 集事淵海 *Tsi shi yüan hai.*—P. 31.—This is probably the same as the 羣書集事淵海 *K'ün shu tsi shi yüan hai* of the 15th cent.—See S. K. CXXXVII. 30.

918. 集驗方 *Tsi yen fang.* Medical prescriptions, by 梅師 *Mei shi* (see No. 341).—P. med. 14.

919. Same title. Author 姚僧坦 *Yao Sêng t‘an.* Middle of the 10th cent.—Biogr. Chou shu 47.—P. med. 14.—Tung i pao kien 4.

920. Same title. Author 董炳 *Tung Ping.* 11th cent.—P. med. 19.—Wylie 79.

921. Same title. Author 朱端章 *Chu Tuan chang.*—P. med.—Sung lit.

922. 集韻 *Tsi yün.* A dictionary, by 丁度 *Ting Tu.* Middle of the 11th cent.—P. 27.—Wylie 8, 9.

923. 濟生方 *Tsi sheng fang,* by 嚴用和 *Yen Yung ho.* Sung dyn.—P. med. 17.—S. K. K. X. 11.

924. 濟生拔萃方 *Tsi sheng pan ts‘ui fang.* A collection of medical treatises and recipes of famous physicians of the Kin and Yüan periods, by 杜思敬 *Tu Sz’ king* of the Yüan or Ming.—P. med. 17.—H. K. VI. 37.

925. 積善堂經驗方 *Tsi shan t‘ang king yen fang,* by 萬表 *Wan Piao,* an author of the Ming.—P. med. 18.—S. K. CV. 21.

926. 祭法 *Tsi fa.* A work on Sacrifices, by 盧諶 *Lu Shen.* Tsin dyn.—Biogr. Tsin shu 44.—P. 35.—Sui lit.

927. 齊諧記 *Ts‘i hiai ki.* A record of marvels, by *Ch‘en Yo* (see No. 820), reproduced in the H. W.—P. 24.—Wylie 154.—See also No. 806.

928. *Ts‘i min yao shu.* See p. 77.

929. 齊地記 *Ts‘i ti ki.* An account of ancient Ts‘i (in Western Shan tung), by 伏琛 *Fu Ch‘en.* 5th cent. or earlier.—P. 32.—S. Y.

930. 齊東野語 *Ts‘i tung ye yü,* by *Chou Mi* (see No. 48).—P. 31.—Wylie 133.

931. 七錄 *Ts‘i lu,* by 阮孝緒 *Yüan Hiao sü,* died 537.—Biogr. Liang shu 51.—Sui lit.

932. 焦希程集 *Tsiao Hi ch‘eng tsi.* Writings of *Tsiao Hi ch‘eng.* 16th cent.—P. 39.—S. K. LIII. 35.

933. 椒宮舊事 *Tsiao kung kiu shi,* by 王達 *Wang Ta.* Ming dyn.—H. K. III. 26.

934. 千金翼方 *Ts‘ien kin i fang.* Medical prescriptions, by *Sun Sz’ mo* (see p. 43).—P. med. 13.

935. 千金備急方 *Ts‘ien kin pei ki fang.* Same author.—P. l. c.

936. 千金髓方 *Ts‘ien kin sui fang.* Same author.—P. l. c.

937. 千金月令方 *Ts‘ien kin yüe ling fang.* Same author.—P. l. c.

938. *Ts‘ien kin shi chi.* See p. 43.

939. 錢起詩集 *Ts‘ien K‘i shi tsi.* Poems of *Ts‘ien K‘i.* Middle of the 8th cent.—P. 38.—Sh. Y.

940. 錢神論 *Ts‘ien shen lun,* by 魯褒 *Lu Pao.* Tsin dyn.—Biogr. Tsin shu 94.—P. 37.

941. 前漢書 *Ts‘ien Han shu.* History of the Former Han, 202 B. C.—25 A. D. Author 班固 *Pan ku;* died A. D. 92.—P. 23.—Wylie 13.

942. 前涼錄 *Ts‘ien liang lu.* Tsin dyn., according to T.

943. 潛溪集 *Ts‘ien k‘i tsi,* by 宋景濂 *Sung King lien,* styled also *Sung Lien.* A. D. 1310—1381.—P. 33.—Mayers 639*a*.—H. K. III. 74.

944. 晉中興書 *Tsin chung hing shu,* by 何法盛 *Ho Fa ch‘eng.* 5th or 6th cent.—P. 25.—S. Y.

945. 晉宮閣名 *Tsin kung ko ming.* Description of the palaces of the Tsin, written during that dynasty.—S. Y.

946. 晉書 *Tsin shu.* History of the Tsin dynasty, A. D. 265—420, by 王隱 *Wang Yin* of the same dyn.—P. 23.—S. Y.

The Tsin shu in its present form was compiled in the 7th cent. by 房喬 *Fang K‘iao.*—Wylie 15.

947. 秦承祖藥方 *Ts‘in Ch‘eng tsu yao fang.* Medical prescriptions of *Ts‘in Ch‘eng tsu.* Tsin dyn.—P. med. 13.—Sui lit.—T. P.

The Sui lit. notices also a work 秦承祖本草 *Ts‘in Ch‘eng tsu Pen ts‘ao,* and several other medical works by the same author.

948. 秦穆公傳 *Ts‘in Mu kung ch‘uan.* An ancient narrative of the Duke Mu of Ts‘in, in the 7th cent. B. C.—P. 24.—Reprinted in the H. W.—Mayers 547.

949. 秦子 *Ts‘in tsz’.* Writings of 秦菁 *Ts‘in Tsing* of the Kingdom of Wu. Period of the three Kingdoms.—Sui lit.

950. 清異錄 *Ts‘ing i lu,* by 陶穀 *T‘ao Ku.* Wu tai and Sung periods.—S. K. K. XIV. 35.

951. 清波雜志 *Ts‘ing po tsa chi.* Sung dyn.—S. K. K. XIV. 24.

952. 清城山記 *Ts‘ing ch‘eng shan ki* (see Appendix 58), by the Taoist priest *Tu Kuang t‘ing* (see No. 492).—W. H. CCVI. 1.

952*a*. 青囊雜纂 *Ts‘ing nang tsa tsuan*, by 邵眞人 *Shao (chen jen)*, a Taoist priest.—P. med. 20.—H. K. VI. 41.—I have not been able to find out when this author lived.—Compare also Mayers 785 青囊書 *Ts‘ing nang shu*, the medical treatises of the Azure satchel, by *Kuo P‘o* of the Tsin dyn.

953. 青箱雜記 *Ts‘ing siang tsa ki*. Sung dyn.—S. K. K. XIV. 11.

954. 青棠集 *Ts‘ing t‘ang tsi*. Ming dyn.—S. K. CLXXIX. 32.

955. 左貴嬪集 *Tso kui pin tsi*.—P. 39.—T. P.—The Sui lit. notices a work 左九嬪集 *Tso kiu pin tsi*, which is probably the same.

956. 昨夢錄 *Tso meng lu*, by 康譽之 *K‘ang Yü chi*. Sung dyn.—P. 38.—S. K. CXLIII. 8.

957. 楚國先賢傳 *Ts‘u kuo sien hien ch‘uan*, by 張方賢 *Chang Fang hien*. Tsin dyn.—P. 31.—S. Y.

958. 楚辭 *Ts‘u sz’*. Elegies of Ts‘u, the poetical production of 屈原 *K‘ü Yüan*. 4th cent. B. C.—P. 27.—Wylie 181.

959. 楚辭芳草譜 *Ts‘u sz’ fang ts‘ao pu*. An account of the plants mentioned in the Elegies of Ts‘u (see No. 958), by 謝翱 *Sie Ao*, an author of the Sung, according to the S. K. K. XVI. 46.—Reprinted in the T. III.

960. 纂文 *Tsuan wen*, by 何承天 *Ho Ch‘eng t‘ien* of the (Liu) Sung dyn. (5th cent.).—P. 25.—S. Y.

961. 纂要方 *Tsuan yao fang*, by 崔行功 *Ts‘ui Hing kung*. Middle of the 7th cent.—Biogr. T‘ang shu 249.—P. med. 14.

962. 泉南志 *Ts‘üan nan chi* and 泉南雜志 *Ts‘üan nan tsa chi*. Both are quoted in the T. and are perhaps the same. The last mentioned, according to S. K. LXXVII. 20, is of the Ming period.

963. 遵生八牋 *Tsun sheng pa tsien*. A discourse on Hygiene, by 高濂深 *Kao Lien shen*. A. D. 1591.—Frequently quoted in the T. and Ch.—Wylie 85.

964. 字林 *Tsz’ lin*, by 呂忱 *Lü Shen* of the Tsin dyn.—P. 27.—W. H. CLXXXIX. 20.—The S. Y. notices a work with the same title by *Liu Shan king* of the Sui dyn.

965. 字說 *Tsz' shuo*, by 王安石 *Wang An shi* (see No. 461).—P. 27.

966. 子母秘錄 *Tsz' mu pi lu*, by 張傑 *Chang kie*. T'ang dyn.—P. med. 15.—Sung lit.—T'ang lit. (author).

967. 資生經 *Tsz' sheng king*, by 王執中 *Wang Chi chung*. Sung dyn.—P. med. 16.—S. K. K. X. 10.

968. 慈溪日鈔 *Ts'z' k'i ji ch'ao*, by 黃震 *Huang Chen*. 13th cent.—P. 36.—Wylie 70.

969. 此事難知 *Ts'z' shi nan chi*, by *Wang Hai ts'ang* (see p. 48).—P. med. 16.—Wylie 79.

970. 獨行方 *Tu king fang*, by 韋宙 *Wei Chou*. T'ang dyn.—Biogr. T'ang shu 240.—P. med. 14.—T'ang lit.

971. 獨異志 *Tu i chi*, by 李冘 *Li Yu*, or 李元 *Li Yüan*. T'ang dyn.—P. 34.—S. K. CXLIV. 3.—S. Y.

972. 獨醒雜志 *Tu sing tsa ki*. A. D. 1185.—Wylie 158.

973. 獨斷 *Tu tuan*, by 蔡邕 *Ts'ai Yung*. A.D. 133—192.—P. 35.—S. K. K. XIII. 5.—Reprinted in the H. W.—Mayers 755.

974. 杜子美集 *Tu Tsz' mei tsi*. Writings of the celebrated poet 杜甫 *Tu Fu*, liter. appellation *Tsz' mei*. A. D. 712—770.—P. 38.—Mayers 680.

975. 杜陽編 *Tu yang pien*. An account of rare and curious objects brought to China from foreign countries from A. D. 763—872, by 蘇鶚 *Su O*. Latter part of the 9th cent.—P. 32.—Wylie 155.

976. 篤論 *Tu lun*, by 杜恕 *Tu Shu*. Tsin dyn.—P. 35.—S. Y.

977. 圖繪寶鑑 *T'u hui pao kien*. Middle of the 14th cent.—Wylie 110.

978. *T'u king pen ts'ao*. See p. 47.

979. *T'u shu tsi ch'eng*. See p. 71.

980. 土宿真君本草 *T'u Su (chen kün) Pen ts'ao*. Materia medica of *T'u Su* (see No. 906).—Mentioned in the P. XV. 38.

981. 吐納經 *T'u na king*. A Taoist work on the curing of diseases by various modes of breathing —P. 35.—T. P.—Apparently a production of the 4th or 5th cent.

982. 退齋閑覽 *T'ui chai kien lan*, by 侯延賞 *Hou Yen shang*, or 侯延慶 *Hou Yen k'ing*. Sung dyn.—P. 36.—S. Y.

983. 遁甲開山圖 *Tun kia k'ai shan t'u.* 5th cent.—P. 34.—Sui lit.—S. Y.

984. 遁甲書 *Tun kia shu.* An ancient Taoist work on divination.—P. 26.—Sui lit.

985. 遯齋閑覽 *T'un chai hien lan*, by 陳正敏 *Ch'en Cheng min.* Beginning of the 12th cent.—P. 36.—W. H. CCXVIII. 1.

936. 燉煌新錄 *T'un huang sin lu.* About A. D. 929.—W. H. CXC. 10.—T. P.—T'un huang is the present An si in Kan su.

987. 東軒筆錄 *Tung hien pi lu.* Close of the 11th cent.—Wylie 157.

988. *Tung i pao kien.* See p. 102 and p. 136.

989. 東溪試茶錄 *Tung k'i shi ch'a lu.* A treatise on the Tea of Tung k'i (an ancient name for a district in Fu kien), by 宋子安 *Sung Tsz' an.* Sung dyn.—S. K. K. XII. 21.

990. 東觀秘記 *Tung kuan pi ki.*—P. 30.—This is I suppose the same as the 東觀漢記 *Tung kuan Han ki*, frequently quoted in the T. and according to the S. K. K. V. 21 completed about A. D. 170. Tung kuan was the name of a pavillion in the palace of the Han at Lo yang.

There is also a 東觀奏記 *Tung kuan tsou ki* of the T'ang dyn.—W. H. CXCVI. 22.

991. 東坡詩集 *Tung p'o shi tsi.* Poems of *Tung p'o*, which is the pseudonym of 蘇軾 *Su Shi*, a celebrated statesman, poet, and commentator. A. D. 1036—1101.—P. 38.—Mayers 623.

992. 東陽方 *Tung yang fang.* Medical prescriptions, by 范汪 *Fan Wang* of the Eastern Tsin.—P. med. 13.—Tung i pao kien 4.—Biogr. Tsin shu 75.

993. 東垣十書 *Tung Yüan shi shu.* The ten books of Tung yüan (see p. 48).—Tung i pao kien 6.—H. K. VI. 37.

994. 洞冥記 *Tung ming ki.* A work attributed to 郭憲 *Kuo Hien* of the Han and relating to the time of Wu Ti. B. C. 140—86.—P. 24.—Wylie 153.—Reprinted in the H. W.

995. 洞山岕茶系 *Tung shan kie ch'a hi*, by 周高起 *Chou Kao k'i.* Present dyn.—According to Wylie 119 this is an account of the Teas of the Tung hill, one of the Kie (岕) range (in Hu chou, Che kiang). I do not find these mountains marked on Chinese maps, nor are they noticed in the great geography of

China (see p. 87). But according to the latter work Tea is produced on the 羅岕 *Lo kie* (*kiai*) mountains (Chang hing hien in Hu chou fu).—The Yu ming shan ki reprints an article entitled 羅岕茶記 *Lo kie ch‘a ki.*

996. 洞天清錄 *Tung t‘ien ts‘ien lu.* 13th cent.—Wylie 134.

997. 洞微志 *Tung wei chi.* Sung dyn.—P. 24.—W. H.—Reprinted in the W. P.

998. 董子 *Tung tsz’.* Writings of 董無心 *Tung Wu sin*, a philosopher between the 5th and 3rd cent. B. C.—P. 35.—Han lit.—Sui lit.

999. 通志 *T‘ung chi*, by 鄭樵 *Cheng Ts‘iao.* A. D. 1108—1162.—P. 31.—Mayers 61.—S. K. K. V. 21.—There is a section on Chinese plants in the work.

1000. 通鑑綱目 *T‘ung kien kang mu.* The well-known Chinese Annals drawn up by the celebrated *Chu Hi* (see No. 75).—Wylie 20.—P. 34.

1001. 通鑑外紀 *T‘ung kien wai ki.* 11th cent.—Wylie 20.

1002. 通俗文 *T‘ung su wen*, by 服虔 *Fu K‘ien* of the After Han.—P. 32.—S. Y.

1003. 通典 *T‘ung tien*, the work which formed the basis of the Wen hien t‘ung k‘ao (q. v.), by 杜佑 *Tu Yu*, in the 9th cent.—P. 24.—Wylie 55.

1004. 通雅 *T‘ung ya.* Ming dyn.—S. K. K. XIII. 13.

1005. 桐栢山志 *T‘ung po shan chi.* Description of the T‘ung po mountain (see Appendix 64), by 薛應旂 *Sie Ying k‘i.* Ming dyn.—Reprinted in the Yu ming shan ki.

1005*a*. 桐譜 *T‘ung pu.* Treatise on the *t‘ung* trees (Sterculia, Elæococca, and other trees), by 陳翥 *Ch‘en Chu.* Sung dyn.—P. 29.—Reprinted in the Ch. descr. part XX. 33.—H. K. III. 15.

1006. 童子秘訣 *T‘ung tsz’ pi küe*, by 姚和衆 *Yao Ho chung.* T‘ang dyn.—P. med. 22.—T‘ang lit.

1007. 外科發揮 *Wai k‘o fa hui.*
外科經驗方 *Wai k‘o king yen fang.*
外科心法 *Wai k‘o sin fa.*
外科通玄論 *Wai k‘o t‘ung küan lun.*

These four treatises on external complaints, enumerated P. 22, are by 薛己 *Sie Ki*, a celebrated physician of the Ming.—Tung i pao kien 8.—The H. K. VI. 32 enumerates all his works contained in the 薛氏全書 *Sie shi ts'üan shu.*

1008. 外科集驗方 *Wai k'o tsi yen fang*, by *Chou Liang ts'ai* (see No. 219).—P. med. 22.

1009. 外科精義 *Wai k'o tsing i*, by 齊德之 *Ts'i Te chi.* Yüan dyn.—P. med. 22.—Wylie 80.

1010. 外科精要 *Wai k'o tsing yao*, by *Ch'en Tsz' ming* (see No. 117).—P. med. 22.

1011. 外國志 *Wai kuo chi.* Account of foreign countries. Quoted in the K. and T.—Seems to date from the 4th cent.

1012. 外國記 *Wai kuo ki.* A treatise on foreign countries. Commencement of the present dyn.—Reprinted in the C. T.

1013. 外臺秘要方 *Wai t'ai pi yao fang*, by 王燾 *Wang Tao.* T'ang dyn.—Biogr. Sin T'ang shu 98.—P. med. 13.—S. K. K. X. 6.

1014. *Wan hua ku.* See No. 330.

1015. 王梅溪集 *Wang mei k'i tsi.*—P. 39.—This is the literary production of 王十朋 *Wang Shi p'eng*, liter. appellation 龜齡 *Kui ling.* 12th cent.—W. H. CCXLVII. 10.

1016. 王維詩集 *Wang Wei shi tsi.* Poetical productions of *Wang Wei.* A. D. 699—759.—P. 38.—Mayers 827.

1017. 王微讚 *Wang Wei tsan.* Commendations of *Wang Wei* of the (Liu) Sung dyn. 5th cent.—P. 27.—Sui lit.

1018. 王元之集 *Wang Yüan chi tsi.* Writings of *Wang Yüan chi.* Sung dyn.—P. 38.—W. H. CCXXXIII. 27.

1019. 魏畧 *Wei lio*, by 魚豢 *Yü Huan.* Period of the three Kingdoms.—P. 25.—S. Y.

1019*a*. *Wei shu.* See No. 172.

1020. *Wei tu fu.* See No. 656.

1021. *Wei wang Hua mu chi.* See p. 39.

1022. 魏文帝集 *Wei Wen Ti tsi.* Writings of the Emperor *Wen Ti* of the Wei dyn. A. D. 221—227.—P. 37.

1023. 魏武帝食制 *Wei Wu Ti shi chi.* Emperor *Wu Ti's* (see the next) Regulations for food.—P. med. 16.—T. P.

1024. 魏武帝集 *Wei Wu Ti tsi.* Writings of the Emperor *Wu Ti* or *Ts'ao Ts'ao*, died 220, the founder of the Wei dynasty.—P. 37.—Mayers 768.

1025. 衛生易簡方 *Wei sheng i kien fang*, by 胡濙 *Hu Yung.* Beginning of the 15th cent.—P. med. 17.—Ming lit.

1026. 衛生家寶方 *Wei sheng kia pao fang*, by *Chu Tuan chang* (see No. 921).—P. med. 17.—Sung lit.

1027. 衛生謌 *Wei sheng ko*, by 眞德秀 *Chen Te siu*, pseudonym 西山 *Si shan.* A.D. 1178—1235.—P. med. 17.—Mayers 58.

1028. 衛生寶鑑 *Wei sheng pao kien.* A work on the preservation of health, by 羅謙甫 *Lo K‘ien fu*, liter. appellation 益之 *I chi*, pseudonym 天益 *T‘ien i.* Yüan dyn.—P. med. 17.—Tung i pao kien 6.

1029. 葦航紀談 *Wei hang ki t‘an.* Sung dyn.—P. 35.—S. Y.—Reprinted in the W. P.

1030. 威靈仙傳 *Wei ling sien ch‘uan.* A memoir on the medical virtues of the plant Wei ling sien, by 嵩陽子 *Sung Yang tsz’.* Close of the 8th cent.—P. 15.—T. CLXXII.

1031. 文系 *Wen hi.*—P. 36.—Seems to belong to the T‘ang period.

1032. *Wen hien t‘ung k‘ao.* See p. 134.

1033. 文選 *Wen süan*, by 蕭統 *Siao T‘ung.* A. D. 530.—P. 27.—Wylie 192.—This work has been commented upon by 李善 *Li Shan*, A. D. 658.

1034. 文字指歸 *Wen tsz’ chi kui*, by *Ts‘ao Hien* (see No 383).—P. 37.—T‘ang lit.

1035. 文苑英華 *Wen yüan ying hua*, by 李昉 *Li Fang.* A. D. 987.—P. 32.—Wylie 193.

1036. 聞奇錄 *Wen k‘i lu.* Towards the close of the T‘ang dyn.—W. H. CCXV. 13.—Reprinted in the W. P.

1037. 聞見近錄 *Wen kien kin lu.* Sung dyn.—S. K. K. XIV. 25.

1038. 聞見錄 *Wen kien lu*, by 邵伯溫 *Shao Po wen.* Sung dyn.—S. K. K. XIV. 24, 25.

A work with the same title appeared in the Ming period.—S. K. CXLIV. 21.

1039. 吳船錄 *Wu ch‘uan lu.* A journal kept during a journey from Sz’ ch‘uan to Hang chow, A. D. 1177, by *Fan Ch‘eng ta* (see No. 388).—Wylie 29.

1040. 吳下思家志 *Wu hia sz’ kia chi.* Sung dyn.—S. Y.

1041. 吳興記 *Wu hing ki.* Records of the department of Wu hing (Che kiang), by 山謙之 *Shan K'ien chi.*—Sui lit.

1042. 吳紀 *Wu ki.* Records of the Kingdom of Wu (Kiang su, Che kiang), by 環濟 *Huan Tsi.* Tsin dyn.—P. 30.—Sui lit.

1043. 吳錄地理志 *Wu lu ti li chi.* A description of the Kingdom of Wu (see the preceding), by 張勃 *Chang Pu.* Period of the three Kingdoms, 3rd cent.—P. 30.—S. Y.—Quoted in the Ts'i min yao shu.—Sometimes the title is written simply *Wu lu.*

1044. 吳地記 *Wu ti ki.* A work similar to the preceding, by 陸廣微 *Lu Kuang wei.* Close of the 9th cent.—S. K. K. VII. 20.

1045. *Wu tu fu.* See No. 656.

1046. *Wu shi Pen ts'ao.* See p. 40.

1047. 吳越春秋 *Wu Yüe ch'un ts'iu.* Ancient history of the small States of Wu and Yüe, extending from the 12th to the 5th cent. B. C., by 趙曄 *Chao I,* a Taoist recluse, who lived towards the end of the first cent. of our era.—Wylie 32.—Legge's Shu king, prol. 67.

1048. 五行記 *Wu hing ki.*—T'ang lit.

1049. 五行書 *Wu hing shu.*—P. 26.—This is probably the same as the 雜五行書 *Tsa wu hing shu* of the list in the T. P. and which is already quoted in the Ts'i min yao shu.

1050. 五溪記 *Wu k'i ki.*—P. 25.—T. P. (10th cent.).

1051. 五色線 *Wu se sien.* Sung dyn.—S. K. CXLIV. 7.

1052. 五代史 *Wu tai shi.* History of the Wu tai or five dynasties, A. D. 907—960, by 薛居正 *Sie Kü cheng.* 10th cent.—P. 30.—Wylie 18.

1053. 五臺山記 *Wu t'ai shan ki.* Account of the Wu t'ai mountain (see Appendix 69). Ming dyn.—There is also a 五臺山志 *Wu t'ai shan chi* of the Ming period.—Quoted in the K. and T.

1054. 五雜俎 *Wu tsa tsu.* Ming dyn.—Quoted in the K. and T.

1055. 物類相感志 *Wu lei siang kan chi.* A series of memoranda regarding natural productions, medicines, food, etc., by *Su Tung p'o* (see No. 991).—Wylie 133.—But the P. 28 gives as the author of a work with the same title *Tsan ning* (see No. 67).—S. K. CXXX. 1.

1056. 物理論 *Wu li lun*, by 楊泉 or 楊全 *Yang Ts'üan.* Tsin dyn.—P. 28.—Sui lit.—S. Y.

1057. 吾學編 *Wu hio pien.* A history of the Ming dynasty. A. D. 1575.—P. 30.—Wylie 25.

1058. 武夷山志 *Wu i shan chi.* Description of the Wu i mountain (see Appendix 67), famed for its Tea, by 裘仲孺 *K'iu Chung ju.* Beginning of the 15th cent.—A work with the same title was written in the middle of the 16th cent. by 徐表然 *Sü Piao jan.*—S. K. LXXVI. 2, 9.—Wylie 43.

1058*a*. 武夷山記 *Wu i shan ki* (see the preceding), by the Taoist priest *Tu Kuang t'ing* (see No. 492).

1058*b*. 武林舊事 *Wu lin kiu shi*, by *Chou Mi* (see No. 48).—Wylie 45.

1059. 務本新書 *Wu pen sin shu.* Frequently quoted in the Nung cheng ts'üan shu. Apparently a production of the Ming period which deals with agriculture.—P. 34.

1060. 梧潯雜佩 *Wu Sin tsa pei.* Memoranda regarding Wu chou fu and Sin chou fu (Kuang si). Ming dyn.—Quoted in the K. and T.

1061. 雅述 *Ya shu*, by 王廷相 *Wang T'ing siang*, literary appellation 浚川 *Sün ch'uan.* Middle of the 16th cent.—P. 35.—S. K. CXXIV. 19; CLXXVI. 13.

1062. *Yang lao shu.* See No. 741.

1063. 養痾漫筆 *Yang o man pi*, by 趙溍 *Chao Tsin.* Sung dyn.—P. 37.—S. K. CXLIII. 9.

1064. 養生主論 *Yang sheng chu lun*, by 王隱君 *Wang yin kün.*—P. med. 17.—The Tung i pao kien 7 styles the author 王匡 *Wang K'uang.* Yüan dyn.

1065. 養生論 *Yang sheng lun*, by 嵇康 *Ki K'ang*, a celebrated alchemist. A. D. 223—262.—P. 37.—Mayers 245.

1066. 養生必用方 *Yang sheng pi yung fang*, by 初虞世 *Ch'u Yü shi.* Sung dyn.—P. med. 17.—W. H. CCXXIII. 3.

1067. 揚州芍藥譜 *Yang chou Shao yao pu.* A treatise on the Shao yao flower (Pæonia albiflora) of Yang chou (Kiang su), by 王觀 *Wang Kuan.* Second half of the 11th cent.—Wylie 121.—Reprinted in the T. CXV.

1068. 藥準 *Yao chun*. A treatise on medicines, by 文彥博 *Wen Yen po*, styled also 潞國公 *Lu kuo kung*. A. D. 1106—1097.—P. med. 14.—Mayers 855.—W. H. CCXXIII. 2.

1069. 藥譜 *Yao pu*. Frequently quoted in the T.—A treatise with this title is reprinted in the W. P. It is a collection of synonyms of drugs, dating from the T'ang dyn.

1070. *Yao sing lun*. See p. 44.

1071. *Yao sing pen ts'ao*. See p. 44.

1072. *Yao tsung küe*. See p. 43.

1073. *Yao tui*. See p. 40.

1074. 要覽 *Yao lan*, by *Lu Ki* (see p. 33) of the 3rd cent.—S. Y.—Reprinted in the W. P.

In the Sui lit. we find several works with the above title by different authors, all of the 5th or 6th cent.

1075. 野人閑話 *Ye jen kien hua*, by *King Huan* (see No. 536).—P. 27.—S. Y.—Reprinted in the W. P.

1076. 野史 *Ye shi*.—P. 34.—The Ye shi is noticed in the list of the T'ang lit. and in the T. P.—The S. Y. mentions a work of this name published during the Sung period.

1077. 野菜譜 *Ye ts'ai pu*. A treatise on wild growing plants used as vegetables, by 王磐 *Wang P'an*, liter. appellation 鴻漸 *Hung tsien*, pseudonym 西樓 *Si lou*, a native of Kao yu (Yang chou fu, Kiang su). First half of the 16th cent. He is not to be confounded with *Wang P'an* of the Yüan (see p. 82).—P 29.—S. K. CII. 14.—H. K. VI. 22.

The Ye ts'ai pu is found reprinted at the end of the *Nung cheng ts'üan shu* (see p. 82). It gives accounts of 60 wild growing edible plants (of the province of Kiang su), accompanied with miserable drawings.

1078. 野菜贊 *Ye ts'ai tsan*. A small treatise on wild growing plants used as vegetables, by 顧景星 *Ku King sing*. Present dyn.—Frequently quoted in the Ch.—Reproduced in the C. T.

1079. 鄴中記 *Ye chung ki*, by 陸翽 *Lu Hui*. Tsin dyn.—P. 32.—S. K. K. VI. 23.—Quoted in the Ts'i min yao shu.

The T. P. notices besides Lu Hui's work a Ye chung ki by 石虎 *Shi Hu*.

1080. 燕翼詒謀錄 *Yen i i mou lu*. Sung dyn.—S. K. K. V. 27.

1081. 燕山叢錄 *Yen shan ts‘ung lu.* Ming dyn.—S. K. CXLIV. 19.

1082. 燕吳行紀 *Yen wu hing ki,* by 張氏 *Chang (shi).* T‘ang dyn.—P. 25.—T‘ang lit.

1083. 延齡至寶方 *Yen ling chi pao fang,* by *Yao Ho chung* (see No. 1006). T‘ang dyn.—P. med. 13.—T‘ang lit.

1084. 延年秘錄 *Yen nien pi lu.*—P. med. 14.—T‘ang lit.

1085. 煙花記 *Yen hua ki.*—Quoted in the T.—The W. P. reprints a memoir of the T‘ang period entitled 南部煙花記 *Nan pu yen hua ki,* which is perhaps the same.

1086. 煙譜 *Yen pu.* A treatise on Tobacco, by 陸燿 *Lu Yao.* End of the 18th cent. (see No. 265).—Reprinted in the C. T.

1087. 彥周詩話 *Yen chou shi hua.* A. D. 1128.—Wylie 197.

1088. 演繁露 *Yen fan lu.* A. D. 1175.—Wylie 129.

1089. 硯譜 *Yen pu.* A treatise on Ink pallets, by *Su I kien* (see No. 53).—P. 29.—S. K. K. XII. 18.

1090. 弇山園記 *Yen shan yüan ki,* by *Wang Shi chen* (see No. 207).—Quoted in the K. and T.—Yu ming shan ki.

There is a mountain *Yen shan* in Shan tung (Tung ch‘ang fu, Sin hien). But the pseudonym of Wang Shi chen was also Yen shan.

1091. 鹽鐵論 *Yen t‘ie lun.* The title means "Salt and Iron," but it treats mostly of State questions. The P. 29 gives 桓譚 *Huan T‘an* as the name of the author (see No. 786), but in the S. Y. as well as in the H. W., where this disquisition is reprinted, and also in the Han lit., the name of the author reads 桓寬 *Huan K‘uan.* He wrote during the reign of Chao Ti, B. C. 86—73.

1092. 晏子春秋 *Yen tsz' ch‘un ts‘iu.* A personal narrative regarding 晏嬰 *Yen Ying,* a celebrated statesman; died 493 B. C. It is the production of an anonymous writer some centuries B. C.—P. 35.—Wylie 28.

1093. 陰證發明 *Yin cheng fa ming,* by *Wang Hai ts‘ang* (see p. 48). Yüan dyn.—P. med. 17.

1094. 陰德錄 *Yin te lu,* by *Chou Pi ta* (see No. 61).—P. 37.

1095. 因話錄 *Yin hua lu.* A record of matters relating to the 8th cent.—Wylie 152.

1096. 飲膳正要 *Yin shan cheng yao*, by 和斯輝 *Ho Sz' hui.* Yüan dyn.—P. med. 16.—S. K. CXVI. 27.

1097. 嬰孩寶鑑 *Ying hai pao kien*, by 湯衡 *T'ang Heng.* Sung dyn.—P. med. 22.—W. H. CCXXIII. 12.

1098. 瀛涯勝覽 *Ying yai sheng lan.* Account of the shores of the Ocean, by 馬觀 *Ma Kuan.* A. D. 1416.—S. K. LXXVIII. 15.

1099. 應驗方 *Ying yen fang*, by 包會 *Pao Hui.*—P. med. 20.—T'ang lit.

1100. 游宦紀聞 *Yu huan ki wen*, by 張世南 *Chang Shi nan.* Early in the 13th cent.—P. 38.—Wylie 132.

1101. 游名山志 *Yu ming shan chi.* Visits to the celebrated mountains of China, by 謝靈運 *Sie Ling yün*, a celebrated poet of the 5th cent.—Sui lit.—S. Y.

1101*a*. 游名山記 *Yu ming shan ki.* A collection of the descriptive accounts and memoirs regarding the hills of note in China, by *Wang Shi chen* (see No. 207). I have frequently consulted this work, in which the matter is arranged according to the hills of each province.

1102. *Yu yang tsa tsu.* See p. 95.

1103. 幽明錄 *Yu ming lu*, by *Liu I k'ing* (see No. 729).—P. 37.

1104. 幼幼新書 *Yu yu sin shu*, by 劉昉 *Liu Fang.* Sung dyn.—P. med. 22.—W. H. CCXXIII. 11.

1105. 玉機微義 *Yü ki wei i*, by 劉純 *Liu Shun*, liter. appellation 宗厚 *Tsung hou.* Yüan and Ming dyn.—P. med. 18.—Tung i pao kien 6.—S. K. CV. 15.

1106. 玉篇 *Yü pien.* A Chinese dictionary, by 顧野王 *Ku Yè wang.* A. D. 523.—P. 27.—Wylie 8.

1107. 玉堂閑話 *Yü t'ang kien hua.* Wu tai period.—S. Y.

1108. 玉堂雜記 *Yü t'ang tsa ki*, by *Chou Pi ta* (see No. 61).

1109. 玉策記 *Yü ts'e ki*, by *Ko Hung* (see note 12 [8]).—P. 34.—T. P.

1110. 玉燭寶典 *Yü tu pao tien*, by 杜臺卿 *Tu T'ai k'ing.* Sui dyn.—P. 33.—S. Y.

1111. 玉洞要訣 *Yü tung yao küe*, by *Chang Kao* (see No. 858).—P. 29.

1112. 餘冬序錄 *Yü tung sü lu*, by 何孟春 *Ho Meng ch'un.* Ming dyn.—P. 36.—S. Y.

1112*a*. 餘話 *Yü hua.* This is the third section of the *Hui chu lu* (see No. 209).

1113. 寓簡 *Yü kien.* A. D. 1174.—Wylie 132.

1114. 庾肩吾集 *Yü Kien wu tsi.* Writings of *Yü Kien wu* of the Liang dyn.—P. 27.—Sui lit.

1115. *Yü yin ts'ung hua.* See No. 877.

1116. *Yü kung.* See p. 33.

1117. 御製盛京賦 *Yü chi Sheng king fu.* A poetical production of the Emperor *K'ien lung* (1736—1796) praising Shen king (Mukden, Southern Manchuria). Father P. Amiot in 1770 published a translation of it from the Manchu version (Éloge de la ville de Moukden et de ses environs, par l'Empereur Kien long). There exists also a translation by Klaproth from the same text. It forms part of his Chrestomathie Mandchoue, 1828.—The Chinese text of the poem is found in the last edition of the Shen king t'ung chi (see p. 88). It contains some particulars regarding the natural productions of Manchuria.

1118. 元眞子 *Yüan chen tsz'.* 8th cent.—Wylie 176.

1119. *Yüan feng Kiu yü chi.* See No. 345.

1120. 元和郡縣志 *Yüan ho Kün hien chi.* A topography of China accompanied with maps, published during the period Yüan ho (806—21), by 李吉甫 *Li Ki fu.*—S. K. K. VII. 2.

1121. *Yüan I t'ung chi.* See p. 86.

1122. *Yüan lan.* See No. 197.

1123. 元史 *Yüan shi.* History of the Yüan or Mongol dynasty, A. D. 1260—1368, by 宋濂 *Sung Lien* and others.—P. 30.—Wylie 19.

1124. 淵明別傳 *Yüan ming pie ch'uan.* Narrative regarding *Yüan ming*, who is the same as *T'ao Ts'ien* (see No. 796).—S. K. K. XV. 3.—Mayers 713, 715.

1125. 淵穎集 *Yüan ying tsi.* Writings of 吳萊 *Wu Lai*, styled also *Yüan ying.* Yüan dyn.—P. 38.—S. K. K. XVII. 16.

1126. 原機啓微集 *Yüan ki k'i wei tsi*, by 倪維德 *I Wei te*, a celebrated physician; died 1377.—Biogr. Ming shi 299.—P. med. 23.—H. K. VI. 30.

1127. 原病式 *Yüan ping shi*, by *Liu Ho kien* (see No. 812).—P. med. 16.

1128. 圓覺經 *Yüan kio king*. Taoist work. T'ang dyn.—P. 37.—T'ang lit.

1129. 園林草木疏 *Yüan lin ts'ao mu shu*, by *Wang Fang k'ing* (see No. 466).—T. CLXXV. CCCXIII.

1130. 袁子正書 *Yüan tsz' cheng shu*, by 袁準 *Yüan Chun*. Period of the three Kingdoms.—S. Y.

1131. 越絕書 *Yüe tsüe shu*. History of the ancient State of Yüe (Southern China). After Han.—Reprinted in the H. W.—S. K. K. VI. 22.

1132. 悅生隨抄 *Yüe sheng sui ch'ao*, by 賈似道 *Kia Sz' tao*; died 1256.—P. 32.—S. Y.—Reprinted in the W. P.—Mayers 252.

1133. *Yüe ling*. See p. 33.

1134. 雲林遺事 *Yün lin i shi*, by *Ku Yüan k'ing* (see No. 7).—Reprinted in the W. P.

1135. 雲林石譜 *Yün lin shi pu*. A treatise on Stones, by 杜綰 *Tu Wan*, liter. appellation 季陽 *Ki Yang*, pseudonym *Yün lin*. Sung dyn.—P. 29.—S. K. CXV. 30.

1136. 雲南行記 *Yün nan hing ki*.—T'ang lit.

1137. 雲南記 *Yün nan ki*. Memoranda regarding Yün nan, by 袁滋 *Yüan Tsz'*. Beginning of the 9th cent.—Biogr. T'ang shu 240.—P. 31.—T'ang lit.

1138. *Yün nan t'ung chi*. See p. 91.

1139. 雲仙散錄 *Yün sien san lu*. T'ang dyn.—W. H. CCXV. 17.

1140. 雲仙雜記 *Yün sien tsa ki*. Beginning of the 10th cent.—Wylie 152.

1141. 韻府羣玉 *Yün fu k'ün yü*. A Encyclopædia, by 陰時夫 *Yin Shi fu*. Yüan dyn.—P. 27.—Wylie 27.

1142. 韻語陽秋 *Yün yü yang ts'iu*, by 葛立方 *Ko Li fang*. Sung dyn.—P. 39.—S. K. XX. 5.

1143. 永嘉記 *Yung kia ki*. Account of the district of Yung kia (Che kiang). 5th cent or earlier.—Quoted in the Ts'i min yao shu.—P. 25.—T. P.

1144. 永類鈐方 *Yung lei kin fang*, by 李仲南 *Li Chung nan*, liter appellation 棲季 *Si ki*. Yüan dyn.—P. med. 18.—Tung i pao kien 7.

1145. 容齋隨筆 *Yung chai sui pi*, by 洪邁 *Hung Mai*. A. D. 1123—1203.—P. 36.—Mayers 198.—Wylie 128.

1146. 湧幢小品 *Yung ch'uang siao p'in*. Ming dyn.—S. K. CXXVIII. 10.

1147. 癰疽方論 *Yung tsü fang lun*, by 李迅 *Li Sin*. Sung dyn.—P. med. 22.—S. K. K. X. 11.

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APPENDIX.

CELEBRATED MOUNTAINS OF CHINA.

We frequently meet in Chinese botanical works with names of Chinese mountains, the situation of which is generally difficult to ascertain for European readers. I have therefore thought it serviceable to subjoin a list of about 70 of the more conspicuous hills and mountains of China proper, adding some particulars about their position, etc. My information has principally been derived from the *Kuang yü ki* and from the *Tu Ts'ing I t'ung chi* (see p. 69 and 87). I have also consulted the 道藏 *Tao ts'ang*, or Great Repository of Taoist literature, in which a list of the mountains venerated by Taoists and of the haunted grottoes situated on them is given. This compilation dates from the 3rd cent. B. C. The Taoists distinguish first the 十大洞天 *shi ta tung t'ien*, the *10 Great haunted Grottoes*, and besides these enumerate 36 other *haunted Grottoes*, 三十六洞天 *san shi liu tung t'ien*, situated on various mountains of the Empire.

From early times the Chinese have revered the 五嶽 *wu yo*, or five sacred mountains: one in the middle, the others in the Northern, Southern, Eastern and Western parts of the ancient Empire. Annual sacrifices were made on them by the ancient Emperors, and on a rock of the Southern mountain the Emperor Yü is believed to have engraved an inscription (see Legge's Shu king).

Chinese literature abounds in descriptions of these various mountains. Many of these accounts are of very early date. Several works have been published collecting the greater part of the records relating to famous mountains, or giving extracts of them. See Alphabet. List of Works, Nos. 510 and 1101*a*.

1. 茶 山 *Ch'a shan.* Yün nan. Tsu hiung fu, 7 li south of Nan an chou. Tea is produced on this hill.

2. 長 白 山 *Ch'ang po shan.* Shan tung. Tsi nan fu, 20 li south of Tsou p'ing hien.

3. 赤 城 山 *Ch'i ch'eng shan,* with the 6th of the ten great haunted grottoes. It forms part of the *T'ien t'ai shan* (see 56) in Che kiang.

4. 鍾 山 *Chung shan.* Kiang su, north-east of Kiang ning fu. The 32nd haunted grotto.

5. 浮 槎 山 *Fou ch'a shan.* An hui. 80 li east of Lü chou fu.

6. 衡 山 *Heng shan.* Hu nan. Heng chou fu, west of Heng shan hien. The Southern of the five sacred mountains, with the 3rd of the haunted grottoes.

7. 恒 山 *Heng shan.* Shan si. Ta t'ung fu, 20 li south-east of Hun yüan chou. The Northern of the five sacred mountains, with the 5th haunted grotto.

8. 霍 山 *Ho shan.* Kuang tung. Hui chou fu, 100 li north-east of Lung ch'uan hien.

9. 霍 童 山 *Ho t'ung shan.* Fu kien. Fu ning fu, 70 li north of Ning te hien. With the first of the 36 haunted grottoes.

10. 華 山 *Hua shan.* Shen si. T'ung chou fu, south of Hua yin hien. The Western of the five sacred mountains, with the 4th haunted grotto.

11. 華 蓋 山 *Hua kai shan.* Che kiang. 1 li east of Wen chou fu. The 17th haunted grotto.

12. 黃 山 *Huang shan.* An hui. North-west of Hui chou fu. See also 44.

13. 會 稽 山 *Hui ki shan.* Che kiang. 30 li south-east of Shao hing fu. The 10th haunted grotto.

14. 蓋 竹 山 *Kai chu shan.* Che kiang. 30 li south of T'ai chou fu. The 19th haunted grotto.

15. 金 華 山 *Kin hua shan.* Che kiang. North of Kin hua fu. The 35th haunted grotto.

16. *Kin t'ing shan.* See 52.

17. 九 華 山 *Kiu hua shan.* An hui. Ch'i chou fu, south-west of Ts'ing yang hien.

18. 九疑山 *Kiu i shan.* Hu nan. Yung chou fu, Ning yüan hien. The 23rd haunted grotto. The Emperor Shun was buried on this hill, 2206 B. C.

19. 句曲山 *Kou k'ü shan*, called also 茅山 *Mao shan.* Kiang su (see note 12*a* and Alph. List of Works No. 651*a*). The 8th great haunted grotto (see p. 43).

20. 勾漏山 *Kou lou shan.* Kuang si, Wu chou fu. 22nd haunted grotto.

21. 顧渚山 *Ku chu shan.* Che kiang, Hu chou fu. North-west of Ch'ang hing hien. Tea is produced on this hill.

22. 括蒼山 *Kua ts'ang shan.* Che kiang. Ch'u chou fu, 70 li east of Tsin yün hien. The 10th great haunted grotto.

23. 光福山 *Kuang fu shan.* Kiang su. South-west of Su chou fu.

24. 鬼谷山 *Kui ku shan.* Kiang si. Kuang sin fu, Kui k'i hien. The 16th haunted grotto.

25. 琅邪山 *Lang ye shan.* Shan tung. Ts'ing chou fu, 150 li south-east of Chu ch'eng hien. The Emperor Shi Huang ti spent three months on this mountain in 219 B. C.

26. 歷山 *Li shan.* Shan si. 60 li south-east of P'u chou fu. Here the Emperor Shun, 2250 B. C., is said to have devoted himself to agriculture.

27. 良常山 *Liang ch'ang shan.* It forms part of the Mao shan (see 19). The 33rd haunted grotto.

28. 六茶山 *Liu ch'a shan.* Yün nan. Southern border of the department of P'u rh fu. Tea is produced on this hill.

29. 羅浮山 *Lo fou shan.* Kuang tung. Hui chou fu, 28 li north-west of Po lo hien. The 7th of the ten great haunted grottoes.

30. 廬山 *Lü shan.* Kiang si. 25 li south of Kiu kiang fu. The 8th haunted grotto.

31. 麻姑山 *Ma ku shan.* Kiang si. West of Kien ch'ang fu. The 28th haunted grotto.

32. *Mao shan.* See 19.

33. 蒙山 *Meng shan.* Sz' ch'uan. East of Ya chou fu. This hill is famed for its Tea.

34. 孟通山 *Meng t'ung shan.* Yün nan. South of Yung ch'ang fu. Tea is produced on this hill.

35. 幕阜山 *Mu fou shan.* Hu pei. Wu ch'ang fu, 20 li south-east of T'ung ch'eng hien. The 25th haunted grotto.

36. 峨嵋山 *O mei shan.* Sz' ch'uan. Kia ting fu, south-west of O mei hien. The 7th haunted grotto.

37. 盤山 *P'an shan.* Chih li. Shun t'ien fu, north-west of K'i chou.

38. 白石山 *Po shi shan.* Kuang si. 60 li south of Sün chou fu. The 21st haunted grotto.

39. 普洱山 *P'u rh shan.* Yün nan. South of P'u rh fu. Tea produced.

40. 首諀山 *Shou pei shan*, called also 大圍山 *Ta wei shan.* Hu nan. Ch'ang sha fu, 150 li north-east of Liu yang hien. The 13th haunted grotto.

41. 西山 *Si shan.* Kiang si. 30 li west of Nan ch'ang fu. The 12th haunted grotto.

42. 仙都山 *Sien tu shan.* Che kiang. Ch'u chou fu, 23 li east of Tsin yün hien. The 29th haunted grotto.

43. 嵩山 *Sung shan*, also called 嵩高山 *Sung kao shan.* Ho nan. Ho nan fu, north of Teng feng hien. The central of the five sacred mountains, with the 6th of the 36 haunted grottoes.

44. 松羅山 *Sung lo shan.* An hui. Hui chou fu, 13 li north of Hui ning hien. Famed for its Tea. This hill seems to form part of the Huang shan. See 12.

45. 四明山 *Sz' ming shan.* Che kiang. Shao hing fu, 110 li south of Yü yao hien. The 9th haunted grotto.

46. *Ta wei shan.* See 40.

47. 大酉山 *Ta yu shan.* Hu nan. 40 li north-west of Chen chou fu. The 26th haunted grotto.

48. 太和山 *T'ai ho shan*, also 武當山 *Wu tang shan.* Hu pei. Siang yang fu, 100 li south of Kün chou.

49. 太華山 *T'ai hua shan.* Yün nan. Yün nan fu, An ning chou.

50. 太白山 *T'ai po shan.* Shen si. South-western corner of the prefecture of Sian fu. The 11th haunted grotto.

51. 泰 山 *T'ai shan*, written also 太 山 *T'ai shan*. Shan tung. 5 li north of T'ai an fu. This is the Eastern of the five sacred mountains, with the 2nd of the 36 haunted grottoes.

52. 丹 池 山 *Tan ch'i shan*, also 金 庭 山 *Kin t'ing shan* and 桐 栢 山 *T'ung po shan*. Che kiang. Shao hing fu, 70 li east of Sheng hien. The 27th haunted grotto.

53. 桃 源 山 *T'ao yüan shan*. Hu nan. Ch'ang te fu, 30 li south-west of T'ao yüan hien. The 34th haunted grotto.

54. 天 柱 山 *T'ien chu shan*. Che kiang. Hang chou fu, south-west of Yu hang hien. The 31st haunted grotto. See also 57.

55. 天 目 山 *T'ien mu shan*. Che kiang. Hang chou fu, north-west of Lin an hien. The 34th haunted grotto.

56. 天 台 山 *T'ien t'ai shan*. Che kiang. T'ai chou fu, north of T'ien t'ai hien. See also 3. The T'ien t'ai mountain was the earliest seat of Buddhism in China. See Dr. Edkins' Chin. Buddhism, p. 137.

57. 潛 山 *Ts'ien shan*, also 天 柱 山 *T'ien chu shan* (see 54). An hui. An k'ing fu, Ts'ien shan hien. The 14th haunted grotto.

58. 青 城 山 *Ts'ing ch'eng shan*. Sz' ch'uan. Ch'eng tu fu, south-west of Kuan hien. The 5th of the ten great haunted grottoes.

59. 青 田 山 *Ts'ing t'ien shan*. Che kiang. Ch'u chou fu, 1 li north-west of Ts'ing t'ien hien. The 30th haunted grotto.

60. 紫 蓋 山 *Tsz' kai shan*. Hu pei. King men chou, 50 li south of Tang yang hien. The last of the 36 haunted grottoes.

61. 都 嶠 山 *Tu kiao shan*. Kuang si. Wu chou fu, 20 li south of Yung hien. The 20th haunted grotto.

62. 洞 庭 山 *Tung t'ing shan*. Kiang su. Su chou fu. On an island of the T'ai hu lake. The 9th of the 10 great haunted grottoes.

63. 洞 陽 山 *Tung yang shan*. Hu nan. Ch'ang sha fu, 60 li north-west of Liu yang hien. The 24th haunted grotto.

64. 桐 栢 山 *T'ung po shan*. Che kiang. T'ai chou fu, 25 li north-west of T'ien t'ai hien. See also 52.

65. 王屋山 *Wang wu shan.* Ho nan. Huai k'ing fu, 80 li west of Tsi yüan hien. The first of the 10 great haunted grottoes.

66. 委羽山 *Wei yü shan.* Che kiang. T'ai chou fu, 5 li south of Huang yen hien. The 2nd of the 10 great haunted grottoes.

67. 武夷山 *Wu i shan.* Fu kien. Kien ning fu, 30 li south of Ch'ung an hien. The 15th haunted grotto. This mountain is famed for its Tea.

68. *Wu tang shan.* See 48.

69. 五臺山 *Wu t'ai shan.* Shan si. T'ai yüan fu, Wu t'ai hien.

70. 玉笥山 *Yü sz' shan.* Kiang si. Lin kiang fu, 40 li south-east of Hia kiang hien. The 18th haunted grotto.

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ERRATA.

Page 28 Line 8 for *Tsi* read *Ts'i*.
,, 30 ,, 18 from below add a comma after *Veratrum*.
,, 33 last Line for Cheng hüan read *Cheng Hüan*.
,, 35 Line 16 from below for *ch'un* read *shen*.
,, 37 ,, 12 for *yen* read *jen*.
,, 53 ,, 6 from below for *jen* read *yen*.
,, 60 ,, 8 ,, ,, ,, 圖 ,, 閩.
,, 62 ,, 8 ,, ,, ,, *tsao* ,, *sao*.
,, 63 ,, 14 for 卿 (second time) read 卄.
,, 65 ,, 12 for 栗 read 粟.
,, 95 ,, 15 add a comma after *Persian*.
,, 169 No. 452 for 犓 read 物.
,, 183 ,, 660 ,, *tien* ,, *t'ieh*.
,, 197 ,, 865 ,, 溤 ,, 潯.

ARTICLE IV.

THE CLIMATE OF SHANGHAI.[1]

ITS METEOROLOGICAL CONDITION.*

BY

THE REV. FATHER M. DECHEVRENS, S.J.

Director of the Zi-ka-wei Observatory.

The ever growing importance of the study of climates cannot be called in question nowadays, and all serious minds, though sometimes apprehensive of the difficulties of such a study, are led to admit that the modifications brought about in the human organism under the influence of climate are as important as those we seek for in the practice of public and private hygiene.

Prevention is better than cure: the knowledge of the various climates will effect that object, and it has been said with reason that whenever the science of hygiene shall have advanced so far as to point out to every one what country he must prefer, the power of medicine may be said to be doubled. Ages of observation go to prove that for any disease recovery is difficult in the medium where it originated; whereas it is possible to prevent the formation, or at least to stop the progress of chronic diseases by keeping off the external causes on which they depend, or by sparing to patients the impressions they would receive from such causes. But to that end one must needs be well acquainted with the characteristics of the various climates that divide the

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[1] Latitude 31° 14′ 32″ North.
Longitude 121° 29′ 8″ East of Greenwich.
Height 0 ft.

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* Read before the Society on the 28th October, 1881.

immense surface of our globe; otherwise the remedy sought for in a change of air or in emigration might be worse than the evil.

This is one of the reasons why Meteorology has lately assumed so great an importance.

What is the true meaning of the word *Climate* and what is understood by *Climatology ?*

Ancient astronomers employed the word *κλίμα* or *region* to designate the space comprised between two circles parallel to the earth's equator; such belts or *climates* were used to indicate the duration of days and nights from the equator to the pole. That ill-defined division of the earth into thirty *climates* of unequal breadth has been superseded by the system of latitudes. Hence the word *Climate*, in its most natural acceptation, designates a certain extent of the surface of the globe offering all over the same conditions of existence. In a word, *climate* is the positive influence of air, water and places on man as a unit and on men congregated in numbers and dwelling on a limited spot of the globe. Such was already the conception of climate in Hippocrates' mind, when he treated of the influence of places (*τόπων*), of water (*ὕδρων*), and of air (*ἀέρων*) for maintaining health and generating disease.

Climatology is a science devoted to the study of climates; it borrows largely from Physical Geography, Geology, Hydrology, Meteorology, Medicine, and Statistics.

These then are the various sciences we must have recourse to for a complete study of the Climate of Shanghai. The importance acquired by this great mart, the trade of which has taken such a wonderful increase, would call for a serious and complete inquiry. But unable to grasp all sides of the question, I shall only bring in my share of the work and limit myself to the meteorological point of view, which after all is the most important as meteorological phenomena are those that most affect public health.

I.—TEMPERATURE.

Of all the elements that go to make up a climate, *temperature* is by far the most important. Its variations are the cause of nearly all the other meteorological phenomena by which climates differ. It therefore always ranks first in the study of a climate.

The increase of temperature with the depth within the crust of the globe, the existence of hot springs and volcanic eruptions, all concur to prove that the heat stored up in the earth does not all proceed from the Sun. Yet, strictly speaking, it can be said that the variations of temperature at the surface are solely due to solar heat.

The mean temperature of a place, as observed by means of thermometers placed in more or less favourable situations, is dependent, more than is generally supposed, upon the nature of the soil and of everything that happens to be in the vicinity of the instruments. Generally speaking, the better all external influence be warded of, the more precautions be taken to get the thermometer in equilibrium of temperature with the air that freely scours over the country, the nearer to the truth will the results be.

The annual mean temperature of the Shanghai district, as given by eight years' uninterrupted observations made under favourable conditions at the Zi-ka-wei Observatory[2] is:

59.° 2 Fahr.

According to Arago the isothermal line of 59°, or the line all the points of which enjoy this mean temperature, passes 0.° 30′ North of Chapel-Hill (U. S.), through Montpellier (France), 0.° 20′ North of Florence (Italy), 0.° 40′ North of Athens (Greece), 1° South of Baku (Caspian Sea), 1.° 5′ North of Nagasaki (Japan). This line is far from corresponding to the parallel of Shanghai (31°), which crosses Texas, passes through Morocco, Alexandria and Lahore, countries and towns which all have a much higher mean temperature than Shanghai. The isothermal line of 59° is considerably deflected to the South on reaching the Eastern coast of Asia.

All the points of an isothermal line do not enjoy the same climate, since a climate with regard to temperature may either be extreme or temperate according as the mean temperatures of

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[2] The Zi-ka-wei Observatory (French Jesuit missionaries), 3.5 miles S.W. of Shanghai.

Winter and Summer differ more or less. Thus at Yakutsk (Siberia) the annual range of mean monthly temperature, or the difference between the mean temperatures of January and of July, is 104.° 7, an enormous variation if compared with Bangkok (Siam) where it does not exceed 5.°4. At Shanghai the annual variation of monthly temperature is 45.° 3, indicating a rather severe climate.

The mean temperatures of the four seasons, from eight years' observations, are:

Winter	39.° 1
Spring	56.° 9
Summer	78.° 2
Autumn	62.° 6

The mean temperature for each month is as follows:—

January ....35.° 8		July.................81.° 1	
February............39. 6		August 80. 1	
March 46. 8		September 73. 4	
April 57. 2		October 63. 3	
May 66. 9		November 51. 3	
June..................73. 4		December 41. 9	

It may be both interesting and useful to know the mean temperature of all the days of the year to be enabled to foretell changes of weather with some degree of probability. The following table gives the mean temperatures of each five days, as deduced from all the observations of the last 8 years (1873-1880). One may notice the coldest day on January 5th (30°. 6) and the hottest on July 6th (83.° 7), giving a range of 53.° 1.

Mean temperature at Shanghai for each five days.

from 1 to 5 January	33.° 8	from 2 — 6 March	41.° 9
„ 6 — 10 „	36. 0	„ 7 — 11 „	45. 6
„ 11 — 15 „	36. 0	„ 12 — 16 „	46. 3
„ 16 — 20 „	36. 4	„ 17 — 21 „	47. 8
„ 21 — 25 „	36. 6	„ 22 — 26 „	49. 4
„ 26 — 30 „	35. 1	„ 27 — 31 „	51. 2
„ 31 — 4 February	37. 8	„ 1 — 5 April	54. 1
„ 5 — 9 „	38. 1	„ 6 — 10 „	55. 0
„ 10 — 14 „	37. 6	„ 11 — 15 „	54. 0
„ 15 — 19 „	39. 2	„ 16 — 20 „	56. 6
„ 20 — 24 „	42. 4	„ 21 — 25 „	60. 4
„ 25 — 1 March	42. 0	„ 26 — 30 „	62. 9

from 1 — 5 May	63.° 7	from 3 — 7 September	77.° 1
„ 6 — 10 „	63. 4	„ 8 — 12 „	74. 8
„ 11 — 15 „	65. 6	„ 13 — 17 „	71. 8
„ 16 — 20 „	66. 6	„ 18 — 22 „	72. 5
„ 21 — 25 „	70. 0	„ 23 — 27 „	70. 7
„ 26 — 30 „	70. 3	„ 28 — 2 October	69. 4
„ 31 — 4 June	70. 6	„ 3 — 7 „	67. 6
„ 5 — 9 „	71. 7	„ 8 — 12 „	64. 8
„ 10 — 14 „	72. 4	„ 13 — 17 „	63. 4
„ 15 — 19 „	74. 4	„ 18 — 22 „	62. 9
„ 20 — 24 „	73. 8	„ 23 — 27 „	60. 2
„ 25 — 29 „	75. 7	„ 28 — 1 November	57. 0
„ 30 to 4 July	79. 0	„ 2 — 6 „	55. 4
„ 5 — 9 „	82. 8	„ 7 — 11 „	52. 6
„ 10 — 14 „	80. 1	„ 12 — 16 „	51. 7
„ 15 — 19 „	80. 3	„ 17 — 21 „	51. 2
„ 20 — 24 „	81. 5	„ 22 — 26 „	48. 1
„ 25 — 29 „	81. 9	„ 27 — 1 December	46. 2
„ 30 — 3 August	81. 9	„ 2 — 6 „	45. 3
„ 4 — 8 „	81. 6	„ 7 — 11 „	43. 4
„ 9 — 13 „	82. 1	„ 12 — 16 „	44. 1
„ 14 — 18 „	80. 9	„ 17 — 21 „	40. 7
„ 19 — 23 „	79. 3	„ 22 — 26 „	39. 6
„ 24 — 28 „	77. 7	„ 27 — 31 „	37. 7
„ 29 — 2 September	77. 7		

To give a fair idea of the variations of temperature at Shanghai, I subjoin the means of the maxima and minima for the same 8 years:

	Minima.	Maxima.
January	17.° 8	57.° 2
February	24. 3	61. 0
March	30. 2	75. 9
April	36. 7	84. 2
May	46. 9	89. 2
June	57. 7	92. 8
July	67. 8	97. 2
August	65. 3	95. 5
September	55. 8	90. 7
October	40. 1	82. 6
November	28. 9	72. 7
December	21. 2	65. 3

Mean of the { absolute minima: 16.° 5 absolute minimum: 12.° 2 January 1878
Mean of the { absolute maxima: 97. 7 absolute maximum: 102. 0 July 1875

In this period of 8 years (1873-1880) there were on an average 14 days, each year, whose mean temperature was lower than *freezing point*, or 32° Fahr. (0° centigrade). In 1878, from the 3rd to the 22nd of January, there were 17 days on which the temperature kept under 32.° For the sake of comparison, let us mention that in Paris, from 1820 to 1872, there were no more than 21 days on which the temperature kept below 32,° the annual average being only 0.4 day.

Mean temperature of a few towns as a term for comparison:

	Year.	Winter (D J.F.)	Summer (J.J.A.)
Shanghai	59.° 2	30.° 1	78.° 2
London	49. 6	39. 2	61. 0
Paris	51. 3	37. 9	64. 9
Peking	53. 2	27. 0	77. 0
New York	53. 8	29. 8	79. 2
Madrid	57. 7	42. 1	74. 1
Rome	59. 7	46. 6	73. 2
Hongkong	72. 5	60. 1	82. 3

We will see, when treating of moisture, how such variations of temperature can influence public health. For the manner in which the human body is affected is quite different with dry or moist air, whether warm or cold; and on such actions the salubrity of a country depends for a great part, together with the advantages or inconveniences it may offer with regard to public and private hygiene.

The variation of the temperature of the air in the course of a day is mostly dependent upon the relative length of days and nights and the clearness of the atmosphere, especially at night. The following table shows this variation at Shanghai for the four seasons of the year: it will be seen that the daily range is not invariable, being smallest in summer and greatest in spring. The greater length of days and the less obliquity of the sun's rays, in summer, are amply compensated by the mantle of vapour in the air which covers the country and prevents the cooling through radiation at night.

Daily variation of temperature for the four seasons at Shanghai (5 years, 1876-1880):

Hours.	Winter.	Spring.	Summer.	Autumn.	Year.
1 a.m.	36 ° 0	52.° 4	73.° 6	58 ° 5	55.° 1
4 „	35. 2	51. 2	72. 9	57. 7	54. 2
7 „	34. 7	53. 4	75. 9	59. 2	55. 8
10 „	41. 2	60. 4	81. 7	67. 8	62. 8
1 p.m.	44. 2	63. 3	83. 7	69. 6	65. 2
4 „	43. 1	62. 0	82. 0	67. 7	63. 7
7 „	38. 7	56. 4	77. 0	61. 7	58. 5
10 „	36. 9	53. 9	74. 7	59. 7	56. 3
	h. m.	h. m.	h. m.	h. m.	h. m.
Minimum	6. 20 a.m. 34.° 5	6. 0. a.m. 51.° 0	4. 36 a.m. 72.° 8	5. 0. a.m. 57.° 7	5. 20 a.m. 54.° 3
Maximum	2. 00 p.m. 44. 5	2. 00. p.m. 63. 5	1. 38 p.m. 83. 8	1. 0. p.m. 69. 6	1. 46 p.m. 65. 3

II.—SOLAR RADIATION.

Though light and heat are intimately connected as radiated by the Sun, yet the causes of diminution for each are not the same. The interposition of a cloud between the Sun and the soil suffices to extinguish a great pert of the solar light without materially diminishing the amount of heat absorbed by the air in a short interval. However exceptional a year may be in regard to variations of temperature, never will January or February be found warmer than July or August; but the amount of light received by the surface of the soil can easily be greater in Winter than in Summer. Let the Winter be very cold and dry with a very clear sky and the Summer be warm and wet with a great deal of rain and clouds, and there will be a similar contrast in the general lighting of the air. Thus, in July 1880, we did not receive, at Zi-ka-wei, more than .33 of the light which the Sun can send us under the most favourable conditions, whilst in January 1881, we were exceptionally favoured and received .49 of that light. Thus again, January and July 1880 both received the same proportion of light.

Now it is well known that every living being requires, not only the Sun's heat, but also and almost in the same degree his light. Valuable information about the Climate of a place may thus be supplied by *Actinometry*, or that department of Meteorology which deals with solar radiation comprising the heat and light available at the surface of the soil.

Herewith are the results of the last 6 years, calculated from only the three principal observations of 10h. a.m., 1h. p.m. and 4h. p.m.

	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Year
1875	.30	.30	.36	.44	.46	.31	.47	.48	.39	.37	.37	.30	.38
1876	.30	.36	.39	.37	.47	.37	.46	.46	.31	.44	.39	.34	.38
1877	.30	.41	.46	.46	.46	.41	.39	.39	.39	.46	.39	.35	.39
1878	.46	.39	.46	.39	.46	.44	.41	.46	.48	.34	.34	.41	.39
1879	.39	.39	.46	.46	.39	.48	.36	.38	.48	.38	.39	.46	.48
1880	.36	.39	.39	.46	.46	.48	.39	.41	.40	.44	.40	.39	.41
Mean	.30	.30	.40	.42	.44	.41	.44	.46	.41	.41	.35	.37	.38

These results, which I have purposely given in full, may be greatly useful to Shanghai physicians if compared with the sanitary state of the Settlements. For comparison's sake, I may add that, at Paris, the mean proportion of light for the period 1872-1878, observed in the same manner as at Zi-ka-wei, was .28 in December (minimum) and .65 in July (maximum), the annual mean being under .49. It must be remarked however that in the calculations the observations of 6 a. m. and 6 p. m. were taken into account.[8]

III.—MOISTURE.

The determination of this element is of great importance. Moisture has been considered by climatologists as one of the physical properties of the air most injurious to human life. A moist atmosphere checks the spontaneous evaporation of the surface of the skin and exercises a debilitating action on all organic functions: a dry air, on the contrary, favours evaporation; it is vivifying and bracing. Whoever has resided at Shanghai for a few years knows by experience how in Summer the strongest man feels oppressed and sluggish, whilst in Winter he has a sense of exalted vitality and excessive muscular energy. It is because in the hottest months, June, July, and August, the air is loaded with moisture, whilst in the cold season, December, January, and February, it is very dry. I shall hereafter, when speaking of the winds, give the reason of this remarkable difference between Summer and Winter in this country.

But first, what is properly moisture? It is easier to feel it than to give a definition of it. One often hears of the air being more or less moist, more or less saturated with humidity: what is the precise meaning of these expressions?

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[8] Annuaire de l'Observatoire de Montsouris, 1879.

Physicists easily prove that a volume of air cannot, at a given temperature, contain more than a certain quantity of vapour: it is then said to be *saturated;* any water in excess of that quantity will remain in the liquid state. Thus a cubic foot of dry air, at a pressure of 30 inches and at 32° Fahrenheit, weighs 563 grains; under these conditions it cannot take up more than 2.11 gr. of water as vapour; at 90° it could hold 13.47 gr.

Knowing the maximum weight for each temperature and degree of atmospheric pressure, and possessing instruments whose indications give the means to calculate the actual weight of vapour in a cubic foot of air, it will be easy to ascertain the exact degree of moisture of that air and consequently of the mass of air to which it belongs; for the degree of moisture is nothing else than the ratio of the actual weight of vapour contained in the air to the maximum weight it could hold at the same temperature and pressure. The instruments most in use for that purpose are the Psychrometer or better still Regnault's condensation hygrometer.

The following tables will help to form an idea of the hygrometric conditions of this place.

Weight of vapour in a cubic foot of air at Shanghai (8 years).

January.	February.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.
2.60	2.36	2.85	4.11	5.50	7.46	9.30	9.30	7.27	5.61	3.37	2.48	5.10

Degree of moisture of air for each month (8 years).

January.	February.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
°/o	°/o	°/o	°/o	°/o	°/o	°/o	°/o	°/o	°/o	°/o	°/o	°/o
80	79	77	79	79	84	84	83	80	78	78	77	80

Degree of moisture of air at different periods of the day for the four seasons (5 years).

Hours.	Winter.	Spring.	Summer.	Autumn.	Year.
	°/o	°/o	°/o	°/o	°/o
1 a.m.	88.7	89.4	93.6	91.1	90.7
4 "	89.7	90.8	94.9	91.9	91.8
7 "	90.8	87.6	89.0	89.9	89.2
10 "	74.6	69.9	73.4	67.3	71.3
1 p.m.	65.8	63.4	70.6	60.6	65.1
4 "	68.1	66.4	73.9	64.6	68.2
7 "	81.0	80.5	86.5	82.4	82.6
10 "	86.4	86.6	92.0	88.2	88.3
Mean	80.6	79.3	84.2	79.5	80.9

Continents naturally supply less vapour to the atmosphere than the sea; the degree of moisture is therefore generally lower in the interior than on the coast. If then we have a coast where the wind in the course of the year blows alternately from the interior of the continent and from the open sea, the moisture will increase or diminish as the wind blows from the sea or from the land. The absolute quantity of water in the air will generally reach its maximum during the warm season, but the relative moisture will mostly depend upon the prevailing winds. At Shanghai, E. and S. E. winds from the sea are the prevailing winds during the six months of the warm season, N. E. and N. W. winds being the most common during the cold months. There is then a double reason for Summer being the moist season, as the capacity of air for vapour rapidly rises with the temperature; and the air blown from the sea is always near its point of saturation. In winter, on the contrary, the vapour in the air is far from saturating it, notwithstanding the low temperature; and the winter at Shanghai is often very dry.

The passage from one system to the other is slow as it appears from the foregoing tables, and this gradual transition is far better for the body than the rapid change that generally takes place in the interior of the continent, at Peking for instance.

We will review in a few words the advantages and drawbacks of those two mediums in which residents in this country live by turns in the course of the year.

Winter—Cold and dry air:

Contraction of the capillary vessels of the skin—Diminution of perspiration—Increase of the quantity of urine—Greater consumption of oxygen—Quicker breathing—More regular appetite—Muscular activity and strength—Exuberance of animal spirits.

Summer—Warm and moist air (containing, for the same volume, less oxygen):

Quick and laborious breathing: hence incomplete hematosis.—The peripherical vessels receive an abundance of liquids, but capillary circulation is sluggish—Moisture checks the evaporation of the perspiration—Appetite blunted, digestion laborious—The relaxation of tissues by warmth and moisture creates a predisposition to congestions—Increase in the weight of the body—Weakness of the muscular system.

It is evident that, were it not for the benefit of its cold and dry winter, the climate of Shanghai would be most detestable.

IV.—ATMOSPHERIC PRESSURE.

This element is of no great importance for a station situated, as Shanghai, at the level of the sea. It would be otherwise at a great altitude, as is the case with numbers of towns in mountainous countries or on high plateaux: the conditions of life are quite different and the phenomena of organic life are intimately connected with the density and pressure of the air.

I shall therefore confine myself to giving the daily variation of the barometer at Shanghai and its monthly variation, since it is the cause of the opposite regular winds (monsoons) which blow by turns through the course of the year.

Daily variation of atmospheric pressure at Shanghai (1876-1880).

1 a.m.	30.$^{\text{in}}$ 034	
4 „	30. 017	1st minimum.
7 „	30. 043	
10 „	30. 062	1st maximum.
1 p.m.	30. 018	
4 „	30. 001	2nd minimum.
7 „	30. 024	
10 „	30. 047	2nd maximum.
Mean	30. 031	

Monthly mean atmospheric pressure at Shanghai (1873-1880).

January	30.$^{\text{in}}$ 388	July	29.$^{\text{in}}$ 711
February	30. 296	August	29. 766
March	30. 198	September	29. 920
April	30. 037	October	30. 144
May	29. 876	November	30. 265
June	29. 778	December	30. 315

Annual mean 30.$^{\text{in}}$ 058.

Mean atmospheric pressure for each period of 5 days (1873-1880).

from	1 to 5	Jan.	30.$^{\text{in}}$	341	from	30 to 4	July	29.$^{\text{in}}$	742
,,	6 — 10	,,		.391	,,	5 — 9	,,		.687
,,	11 — 15	,,		.443	,,	10 — 14	,,		.713
,,	16 — 20	,,		.414	,,	15 — 19	,,		.709
,,	21 — 25	,,		.376	,,	20 — 24	,,		.717
,,	26 — 30	,,		.379	,,	25 — 29	,,		.735
,,	31 — 4	February		.322	,,	30 — 3	Aug.		.720
,,	5 — 9	,,		.321	,,	4 — 8	,,		.728
,,	10 — 14	,,		.261	,,	9 — 13	,,		.709
,,	15 — 19	,,		.330	,,	14 — 18	,,		.755
,,	20 — 24	,,		.241	,,	19 — 23	,,		.800
,,	25 — 1	March		.275	,,	24 — 28	,,		.815
,,	2 — 6	,,		.278	,,	29 — 2	Sept.		.901
,,	7 — 11	,,		.231	,,	3 — 7	,,		.863
,,	12 — 16	,,		.201	,,	8 — 12	,,		.866
,,	17 — 21	,,		.192	,,	13 — 17	,,		.953
,,	22 — 26	,,		.162	,,	18 — 22	,,		.917
,,	27 — 31	,,		.119	,,	23 — 27	,,	30	.001
,,	1 — 5	April		.116	,,	28 — 2	Oct.	29	.996
,,	6 — 10	,,		.042	,,	3 — 7	,,	30	.108
,,	11 — 15	,,		.110	,,	8 — 12	,,		.145
,,	16 — 20	,,		.084	,,	13 — 17	,,		.179
,,	21 — 25	,,	29	.947	,,	18 — 22	,,		.103
,,	26 — 30	,,		.956	,,	23 — 27	,,		.171
,,	1 — 5	May		.974	,,	28 — 1	Nov.		.226
,,	6 — 10	,,		.898	,,	2 — 6	,,		.216
,,	11 — 15	,,		.888	,,	7 — 11	,,		.260
,,	16 — 20	,,		.884	,,	12 — 16	,,		.311
,,	21 — 25	,,		.844	,,	17 — 21	,,		.263
,,	26 — 30	,,		.792	,,	22 — 26	,,		.270
,,	31 — 4	June		.858	,,	27 — 1	Dec.		.275
,,	5 — 9	,,		.839	,,	2 — 6	,,		.293
,,	10 — 14	,,		.771	,,	7 — 11	,,		.307
,,	15 — 19	,,		.736	,,	12 — 16	,,		.286
,,	20 — 24	,,		.758	,,	17 — 21	,,		.320
,,	25 — 29	,,		.779	,,	22 — 26	,,		.348
					,,	27 — 31	,,		.344

The two last tables show that atmospheric pressure, at Shanghai, undergoes a perfectly perceptible oscillation during the course of the year; at its maximum in January (the 13th: 30.$^{\text{in}}$ 476), it sinks gradually till July (the 6th: 29.$^{\text{in}}$ 674) to rise again. This variation is not peculiar to our station; it is observed all over Asia: its cause and consequences we must briefly explain.

V.—WINDS—MONSOONS.

On the whole Southern and Eastern slope of Asia we see a mutual reaction of continental and oceanic influences, the great *Monsoons.* In our Winter the continental regions of Asia are cooler than the surrounding seas and pressure is higher; the air consequently, actuated by gravity, flows from the continent towards the ocean: hence we have steady Northerly (N. E., N. and N. W.) winds which blow through the Winter and are naturally cold and dry. This is the *Winter Monsoon* and the *dry Season* on the Eastern coast of China. In our Summer, pressure is very low over a great part of the Asiatic continent, owing to the heat and the ascending current produced by it: therefore the air of the ocean will flow towards Asia. Hence the winds from E., S. E. and S. which prevail at Shanghai and bring the well-known excess of moisture. This is the *Summer Monsoon* and the *wet Season.*

Herewith we give the mean direction of the wind at Shanghai, determined from hourly observations made during eight years at Zi-ka-wei by means of self-registering anemometers giving each moment the direction and velocity of the wind.

Mean direction of the wind at Shanghai (1873-1880) and mean velocity per hour (1875-1880).

Jan.	N. 4°,	W.	8.2	miles.	July	S. 41°	E.	8.8	miles.
Feb.	N. 11	E.	8.7	„	Aug.	S. 70	E.	7.2	„
March	N. 51	E.	8.8	„	Sept.	N. 54	E.	6.4	„
April	S. 79	E.	8.8	„	Oct.	N. 32	E.	6.1	„
May	S. 54	E.	9.0	„	Nov.	N. 6	W.	6.4	„
June	S. 66	E.	8.5	„	Dec.	N. 11	W.	8.1	„

Annual Mean: N. 62° E.—7.9 miles.

Thus the wind which blows from N. in January, veers to N. E. between February and March, to E., between March and April, to S. E. in May; it turns a little to E. again in June, whilst July enjoys the most Southerly wind. From that month to the end of the year it turns to E. and N., getting in December as far as N. 11° W. The oscillation is then perfectly definite. The alternation of the two Monsoons is equally a constant fact not subject to any exception.

Squalls or gales, though not violent, are frequent enough at Shanghai, as this port is about equally distant from the most common track of two kinds of storms that come now and then to break the sameness of the settled Monsoons. In Winter, there are frequent atmospheric depressions issuing from Central Asia; they run from West to East, crossing with great velocity Siberia, Mongolia and Japan; they rush towards the area of minimum pressure that exists in the middle of the North-Pacific Ocean. In Summer, there are Typhoons in the South, between 15.° and 25.° latitude North, following the opposite direction, from East to West, and proceeding from the Equatorial Pacific towards the Philippines and Southern China or Tonquin; sometimes, chiefly in July and August, they take a run northward, approach Shanghai and carry havoc over Japan.

During the passage of those Northerly storms that usually rage with violence along their path, the winds at Shanghai are convergent to the centre of the depression: they consequently begin by blowing feebly from E. or E. S. E., then they turn slowly as the depression approaches, as shown by the progressive sinking of the barometer. While the storm is raging North of Shanghai, the barometer is at its lowest point; the wind comes from S. or S. W., bringing a high temperature and a great amount of moisture; when at last the depression moves, thêre is generally a strong gale from N. W. which, in Winter, brings very cold weather.

The Typhoons are much smaller in diameter than the Northern atmospheric depressions, and whenever they keep in Southern regions, they are not perceived at Shanghai except by a slight fall of the barometer, the winds being E. or N. E.

These two kinds of storms, with regard to the amount of rain they bring on, both partake of the nature of the seasons during which they usually form: the Winter depressions, coming from the interior of the continent with the great dry air current that issues from it, raise enormous masses of dust which they carry far and wide, increasing the barrenness of the countries they pass over. The Typhoons, on the contrary, originating in the warm and moist maritime regions of the Equator, are invariably characterized by diluvial rains.

VI.—RAIN.

This peculiar system of rain in the Monsoon regions appears clearly from the following tables calculated from the observations taken at Zi-ka-wei.

Frequency and amount of rain fallen at Shanghai (1873-1880).

	days.	inches.		days.	inches.
January	9.4	2.269	July	11.2	3.560
February	11.7	2.887	August	10.5	4.655
March	12.0	2.871	September	10.9	5.714
April	12.5	3.588	October	8.7	2.840
May	11.1	2.871	November	6.9	1.962
June	13.0	7.857	December	6.1	1.390

Annual Sum: 124 days. 42.464 inches.

Of these 124 rainy days we have:

in *Winter* 54.8 days giving 14.219^{in} of water.
in *Summer* 69.2 „ „ 28.245 „

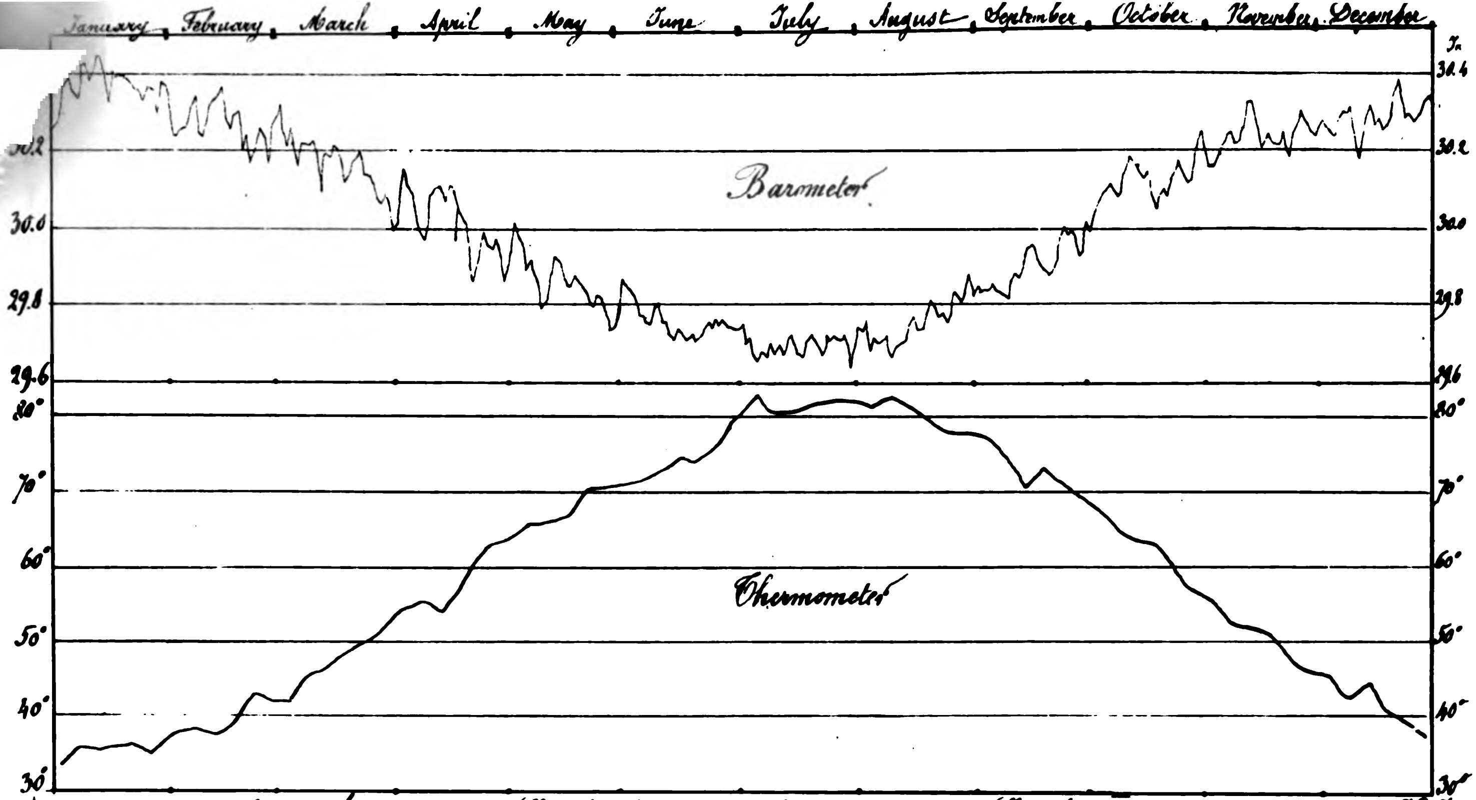
The heaviest shower was that of October 24th 1875, during which there fell 7.088^{in} of water in 3½ hours, equal to 2.024^{in} per hour.

Snow is frequent in Winter, particularly in January, the coldest but not the driest month of the year.

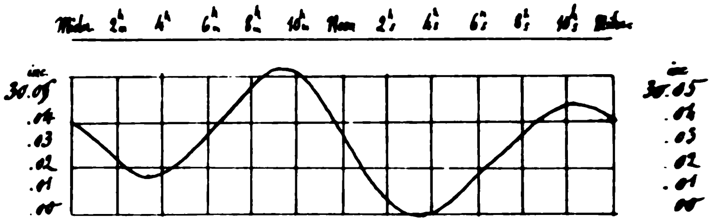
VII.—NEBULOSITY, OR CLOUDS.

The state of the sky, its clearness or nebulosity, is evidently closely connected with the moisture of the air. Yet, with the exception of November and December, usually the finest months of the year, the mean co-efficient of nebulosity varies little from one season to another: the reason is that the upper regions of the atmosphere are swept by a huge current which for 9 or 10 months always runs from West to East, carrying along clouds (cirri) that have nothing to do with the moisture or dryness of the lower strata of air. Those clouds (alto-cumuli, cirri, cirro-strati), of a thousand shapes and varieties, are always of a graceful aspect; they may truly be said to make up two-thirds of the nebulosity of our sky.

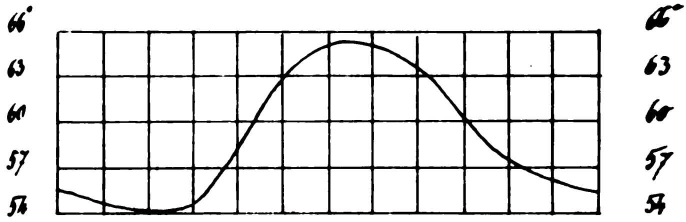
These indications with regard to the meteorological conditions of the Climate of Shanghai, though brief, are yet sufficient to enable physicians to form an opinion upon the salubrity of the port. To complete the study of this climate, the water and soil should be inquired into, and the knowledge thus acquired would throw light on the causes of the prevailing diseases, and would also explain how residence in Shanghai might be beneficial to some patients. I must however leave this to others more versed in these questions.



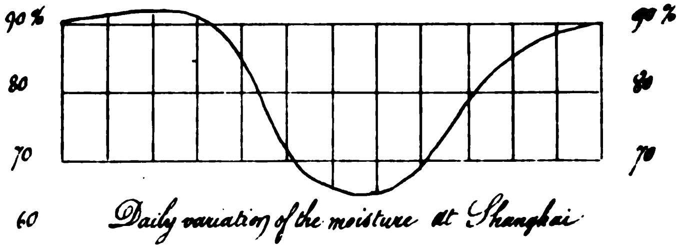
1- Mean daily atmospheric pressure at Shanghai (1873-1880) – 2- Mean temper at Shanghai from 5 to 5 days (1873-1880).



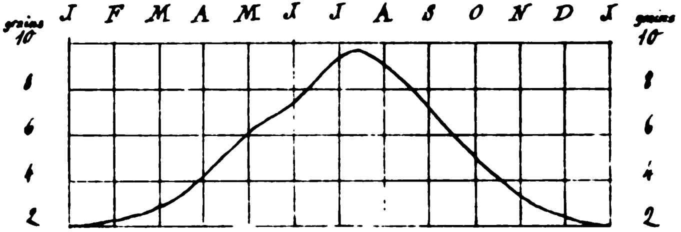
Daily variation of the Barometer at Shanghai.



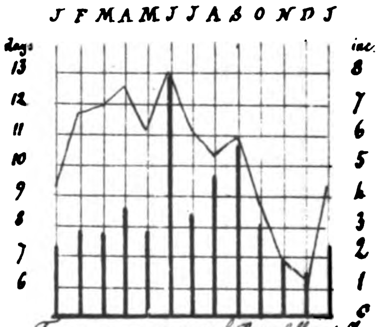
Daily variation of the Thermometer at Shanghai.



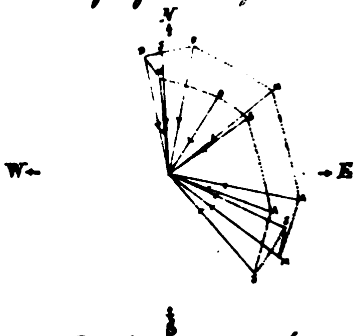
Daily variation of the moisture at Shanghai.



Monthly weight of vapour in a cubic foot of air at Shanghai



Frequency and amount of Rain fallen at Sh.



Prevailing winds - mean velocity M.D.

Miscellaneous.

List of Ferns found in the Valley of the River Min, Foochow.*)

ADIANTUM cuneatum. (Banker's glen only.)
ASPIDIUM aculeatum.
   „ aristatum.
   „ falcatum.
   „ laserpitiifolium.
ASPLENIUM lanceum.
BLECHNUM longifolium?
CERATOPTERIS thalictroides.
DAVALLIA elegans. (Yuen-foo.)
   „ immersa.
   „ strigosa. (Said to be found at Yuen-foo.)
LINDSAYA cultrata.
NEPHRODIUM (LASTREA) decursivo-pinnatum.
   „ Filix-mas.
   „ sophoroides.
   „ subtriphyllum.
OSMUNDA regalis.
POLYPODIUM (NIPHOBOLUS) Lingua.
   „ normale.
   „ quercifolium.
PTERIS aquilina.
   „ serrulata.
SCOLOPENDRIUM vulgare.
WOODWARDIA japonica.

G. C. ANDERSON,
S.S. Appin, 1881.

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[*] Genera and Subgenera in CAPITALS; accepted Species in Roman text, according to Hooker's Synopsis Filicum, 2nd Ed. London, 1874.—*Ed. Journ.*

REPORT OF THE COUNCIL

OF THE

NORTH-CHINA BRANCH

OF THE

ROYAL ASIATIC SOCIETY,

FOR THE YEAR 1881.

JOURNAL, NEW SERIES, Vol. XVI. PART 2,
(concluding the volume).

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REPORT

OF THE

COUNCIL OF THE NORTH-CHINA BRANCH

OF THE

ROYAL ASIATIC SOCIETY,

FOR THE YEAR 1881.

AT the Annual Meeting, held on the 16th of March, 1881, the following gentlemen were elected Office Bearers for the year:—

G. J. MORRISON, ESQ.,	*President.*
A. E. HIPPISLEY, ESQ., REV. W. MUIRHEAD,	*Vice-Presidents.*
JAMES ACHESON, ESQ.,	*Secretary.*
G. H. J. KLEINWÄCHTER, ESQ.,	*Treasurer.*
MAX SLEVOGT, ESQ.,	*Librarian.*
T. W. KINGSMILL, ESQ.,	*Curator.*
Very REV. DEAN BUTCHER, D.D., JOSEPH HAAS, ESQ., JOHN FRYER, ESQ., ALEX. HOSIE, ESQ., C. SCHMIDT, ESQ., A. B. STRIPLING, ESQ.,	*Councillors.*

Six General Meetings of the Society were held during the year.

Owing to the departure of Mr. G. H. J. Kleinwächter from Shanghai the post of Treasurer became vacant and Mr. T. S.

Southey at the request of the Council consented to act. Mr. T. W. Kingsmill on his return from Europe being unable to undertake the duties of Curator, Mr. D. C. Jansen kindly consented to remain in office.

The following papers were read at the Meetings of the Society:—

1.—*16th March*, "Fresh Water in the Sand Banks of the Formosa Channel." By F. W. Schulze, Esq.

2.—"Notes of a Trip to the Island of Saghalin." By Geo. C. Anderson, Esq.

3.—*26th April*, "On the Rapids of the Upper Yangtsze." By E. H. Parker, Esq., of H. B. M.'s Consular Service.

4.—*9th June*, "Chinese Buddhism of the Present Day." By the Rev. John Butler.

5.—*26th September*, "Botanicon Sinicum. Notes on Chinese Botany from Native and Western Sources." By E. Bretschneider, Esq., M.D., Physician to the Imperial Russian Legation, Peking.

6.—"Notes on Saghalin, Aniva Bay, and the Coast of Russian Tartary."

7.—*28th October*, "The Climate of Shanghai. Its Meteorological Condition." By the Rev. Father Marc Dechevrens, S.J., Director of the Zi-ka-wei Observatory.

8.—"Notes on Chinese Composition." By Herbert A. Giles, Esq., of H. B. M.'s Consular Service.

9.—*15th December*, "The Minor Currency of Annam." By E. Toda, Esq., Consul for Spain.

The Society was represented at the Third International Geographical Congress at Venice, in September, 1881, by Lieut. G. Kreitner; who has furnished a valuable and interesting report on the work of the Congress referring to Central and Eastern Asia.

Two Corresponding Members, Dr. H. Fritsche of Peking and Lieut. G. Kreitner of the I. R. Austrian Army, and fifteen Ordinary Members were elected during the year.

Three Ordinary Members resigned. There were on the list of the Society on the 31st December, 1881, fourteen Honorary, twenty-six Corresponding, and one hundred and twenty-three Ordinary Members.

The Society has to deplore the death of one Honorary Member, Mr. A. F. Marques Pereira, who died at Bombay on September 11th, 1881.*

The Meetings have continued to be fairly well attended, and the Public generally taken a greater interest in the work of the Society. Probably from want of knowledge of the facilities now afforded to readers the Library of the Society is not so largely availed of as might be expected. It is now placed in communication with the Shanghai Library, and permission to make use of it can be obtained on application to the Librarian of that institution.

The first part of the Society's Journal for 1881 was issued in March, 1882.

Some of the older volumes of the Society's Proceedings being out of print the Council propose to issue a new edition, should a sufficient number of subscribers to justify the venture be forthcoming. Some of these volumes at present command a high price.

The usual reports of the Treasurer, Librarian, and Curator of the Museum are appended.

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* Mr. A. F. Marques Pereira had been an Honorary Member of our Society since 1865. He was born at Lisbon, and entered, while young, the Consular Service of his country. After having received his preliminary training in Portugal, he was sent out to China, and ultimately served for eight or nine years at Bangkok, whence, early in the past year, he was transferred as Consul-General to Bombay. He was a man of considerable literary attainments and the author of several works on the history of the Portuguese Colony at Macao and the relations of the Portuguese with China since their arrival in the 16th century. During his residence in the East he was always a true and earnest friend to our Society, taking great interest in Oriental matters, and more particularly in Numismatics. While in Bangkok, he made a fine collection of Siamese coins, a portion of which was presented to the King of Portugal; and his pamphlet: *Moedas de Siam. Lisboa:* 1879, contains much valuable information on the little-known subject of Siamese Coinage. Mr. Marques Pereira was an Honorary Member of several learned Societies of Europe and Asia.

LIST OF MEMBERS.

APRIL, 1882.

HONORARY.

His Majesty LEOPOLD II., King of the Belgians.

Alcock, Sir Rutherford, K.C.B., London.
Hart, Robert, Esq., C.M.G., Peking.
Legge, Rev. J., D.D., L.L.D., Oxford.
Medhurst, Sir Walter H., K.C.B., London.
Parkes, Sir Harry S., K.C.B., K.C.M.G., Tokio.
Prejevalsky, Col. N., St. Petersburg.
Richthofen, Baron Ferdinand von, Bonn.
Seward, The Hon. George F., U.S.
Shadwell, Admiral Sir Charles F. A., K.C.B., Melksham, Wilts.
Wade, Sir Thomas F., K.C.B., Peking.
Williams, Rev. S. Wells, L.L.D., New Haven, U.S.
Wylie, Alex., Esq., London.
Yule, Col. H., C.B., London.

CORRESPONDING.

Bastian, Prof. Dr. A., Berlin.
Cox, Rev. Josiah.
Delaplace, Mgr. L. G., Peking.
Edkins, Rev. J., D.D., Peking.
Fritsche, H., Esq., PH. D., Peking.
Fryer, John, Esq.
Giles, Herbert A., Esq.
Gordon, Col. C. G., C.B., Mauritius.
Hance, H. F., Esq., PH. D., Whampoa.
Happer, Rev. A. P., D.D., Canton.
Hepburn, J. C., Esq., M.D., Yokohama.
John, Rev. Griffith, Hankow.
Keischke, Dr. Ito, Tokio.
Kreitner, Lieut. G., Vienna.
Lindau, wirkl. Leg.-Rath Dr. R., Berlin.
Lockhart, W., Esq., M.D., London.
Macgowan, D. J., Esq., M.D., Wenchow.
Martin, Rev. W. A. P., D.D., L.L.D., Peking.
McCartee, D. B., Esq., M.D., Tokio.
McClatchie, Rev. Thos., M.A., Shanghai.
Moule, Right Rev. G. E., D.D.
Muirhead, Rev. W., Shanghai.
Rondot, Natalis, Esq., Lyons.
Schereschewsky, Right Rev. S. I. J., D.D.
Széchényi, Count Bela, Zinkendorf, Hungary.
Williamson, Rev. A., L.L.D., Chefoo.

MEMBERS.

Acheson, James, Esq.
Agar, Luis de, Esq.
Alford, R. G., Esq.
Allen, E. L. B., Esq.
Allen, H. J., Esq.
Amelunxen, E. A. von, Esq.
Anderson, G. C., Esq.
Ayrton, W. S., Esq.

Baber, E. C., Esq.
Baesler, Jos., Esq.
Bamford, Rev. A. J.
Brenan, B., Esq.
Bretschneider, E., Esq., M.D.
Bristow, H. B., Esq.
Brosche, H., Esq.
Brown, J. McLeavy, Esq.
Bryner, J., Esq.
Bushell, S. W., Esq., M.D.
Butcher, Very Rev. C. H., D.D.
Buttles, Prof. E. K.

Callado, His Ex., E.
Coignet, F., Esq.
Cooper, W. M., Esq.
Cooverjee, P., Esq.
Cordes, August C., Esq.
Coughtrie, J. B., Esq.

Davenport, A., Esq.
Deighton-Braysher, C., Esq.
Dennys, H. L., Esq.
Dodd, J., Esq.
Dowdall, C., Esq.
Dülberg, F. W. E., Esq.

Eitel, Rev. E. J., PH. D.

Farago, E., Esq.
Fauvel, A. A., Esq.
Ferguson, His Ex., J. H.
Fergusson, T. T., Esq.
Fisher, H. J., Esq.
Forbes, F. B., Esq.
Frater, Alex., Esq.

Gardner, C. T., Esq.
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Giquel, P., Esq.
Glover, G. B., Esq.
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Grant, P. V., Esq.
Gubbay, R. A., Esq.
Guppy, H. B., Esq., M.B.

Haas, J., Esq.
Hague, E. P., Esq.
Hanbury, T., Esq.
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Henderson, J., Esq.
Henry, A., Esq., M.D.
Hippisley, A. E., Esq.
Hirth, F., Esq., PH. D.
Hjousbery, E., Esq.
Hobson, H. E., Esq.
Holt, Rev. W. S.
Hosie, Alex., Esq., M.A.
How, A. J., Esq.
Hübbe, P. G., Esq.

Imbault-Huart, C., Esq.

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Jansen, D. C., Esq.
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Johnston, J., Esq., M.D.

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Kleinwächter, F., Esq.
Kleinwächter, G. H. J., Esq.

Kopsch, H., Esq.
Krauss, A., Esq.
Krey, W., Esq.

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Little, L. S., Esq., M.D.
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Mann, James, Esq., M.D.
McClatchie, H. P., Esq.
Möllendorff, O. F. von, Esq., PH. D.
Möllendorff, P. G. von, Esq.
Morris, Herbert S., Esq.
Morrison, G. J., Esq.

Owen, Rev. G. S.

Paasch, C., Esq.
Parker, E. H., Esq.
Pichon, L., Esq., M.D.
Pitman, J., Esq.
Plancy, V. Collin de, Esq.
Pollock, John, Esq., M.D.

Reeks, A. J., Esq.
Reid, David, Esq.
Rhein, J., Esq.
Rivington, Charles, Esq.
Rocher, E., Esq.
Ruegg, E., Esq., L.L.D.
Russell, The Hon. James.
Ryrie, The Hon. Phineas.

Sampson, T., Esq.
Samson, J., Esq.
Saunders, W., Esq.
Scherzer, F., Esq.
Schmidt, C., Esq.
Schultz, Capt. C. A.
Schulze, F. W., Esq.
Seckendorff, Baron Edm. von.
Shinagawa, E., Esq.
Sim, Alexander, Esq.
Slevogt, M., Esq.
Smith, The Hon. Cecil C.
Southey, T. S., Esq.
Starkey, Reg. D., Esq.
Stent, G. C., Esq.
Streich, K. I., Esq.
Stripling, A. B., Esq.
Sutherland, H., Esq.

Tanner, P., Esq.
Tata, D. B., Esq.
Toda, E., Esq.

Vissière, A., Esq.

Warburg, C. G., Esq.
Washbrook, W. A., Esq.
Watters, T., Esq.
Wetmore, W. S., Esq.
White, F. W., Esq.
Wicking, H., Esq.
Wilcox, R. C., Esq.
Wood, A. G., Esq.

Youd, F., Esq.

NORTH-CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY.

STATEMENT OF RECEIPTS AND EXPENDITURE FOR THE YEAR 1881.*

RECEIPTS.	$	cts.
To Balance from last Account	408	81
„ Sale of Journals	93	30
„ Sale of Catalogues	4	50
„ Subscription to Library from Shanghai Library Tls. 20	27	02
„ Subscription from 40 Resident Members ...	400	00
„ „ „ 53 Non-Resident do. ...	265	50
„ Interest on Current Account with H. & S. Bank	9	01
	$1208	14

EXPENDITURE.		$	cts.
By Taxes to Municipal Council		22	43
„ „ „ Chinese Government ...	2124 cash	1	93
„ Printing Journal for 1860		515	05
„ „ Catalogue		100	00
„ Insurance, Building and Contents ...	Tls. 45	61	30
„ Mrs. Gale, Assistant Librarian	„ 60	81	74
„ Advertising		68	37
„ Freight on Journals and Postages		34	35
„ Printing and Stationery		38	30
„ Book-binding		27	75
„ Gas		4	14
„ Sundries		17	25
„ Balance with H. & S. Bank	$204 81		
„ „ in hands of Hon. Treasurer	30 72		
		235	53
		$1208	14

E. & O. E.

G. H. J. KLEINWACHTER,
Hon. Treasurer.

Audited and found correct.
T. W. KINGSMILL.
A. B. STRIPLING.

SHANGHAI MUSEUM.

STATEMENT OF RECEIPTS AND EXPENDITURE FOR THE YEAR 1881.*

Receipts.	$	cts.	Expenditure.	$	cts.
To Balance from last Account	142	13	By Shanghai Library, Rent to Dec. 31 Tls. 150	204	36
„ Grant from English Municipal Council Tls. 500			„ Recreation Fund, 2 years' interest on loan „ 150	204	36
„ „ „ French „ „ „ 100			„ Taxidermist's wages, 12 months, at $20	240	00
			„ Insurance on Contents, Tls. 1000 ... Tls. 8	10	90
Tls. 600	817	44	„ Stationery	10	40
„ Interest on Current Account with H. & S. Bank	9	01	„ Book-binding	20	80
			„ Coolie and Sundries	85	50
			„ Show-case and Glass Jars	69	21
			„ Municipal Taxes ... ... Tls. 6 66	9	05
			„ Balance lodged in H. & S. Bank	114	00
	$ 968	58		$ 968	58

E. & O. E.

G. H. J. KLEINWÄCHTER,
Hon. Treasurer.

Audited and found correct.
T. W. Kingsmill.
A. B. Stripling.

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* The usual Report was sent in by the Hon. Treasurer, but, owing to his transfer to Takow, it arrived too late for publication.—*Ed. Journal.*

Curator's Report.

To the President, Council, and Members of the

NORTH-CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY.

GENTLEMEN,

The additions to our Museum during the past year are enumerated in the annexed list.

The falling off in the number of specimens presented, as compared with the previous year, must not be attributed to any decrease of interest in the institution on the part of its hitherto liberal supporters. Formerly contributions consisted mostly of the fauna of this neighbourhood, or such as were brought here from the coast ports, requiring no further trouble from the person presenting them than sending to the curator or taxidermist to mount and place on the shelves of the Museum; but now that it is generally known that such specimens are, to a large extent, well represented in our collection, and as few persons possess sufficient knowledge of taxidermy, or care to perform the tedious labour of preparing the specimens themselves, contributions come in much slower than when they were to be obtained with so little trouble.

Of the 800 species of birds found in China our Museum contains but 313 specimens, 214 of which belong to this province or are common throughout China; and to give an idea how slowly this number has been increased, it may be mentioned that not more than twenty species have been added during the last four years.

From this it will be seen that we can no longer rely on voluntary contributions to increase our collections. If we wish to obtain specimens of the natural history of the southern, interior, or more remote localities we must either purchase where best we can, or employ some one to collect for us. In the meantime however let us hope that former contributors and others will not withhold their contributions under the mistaken impression that they will not be acceptable.

We want everything—mammals, birds, reptiles, fishes, in fact every description of the Natural History of this country, and more especially those descriptions most commonly met with; as a good collection of these once made would help to fill our shelves and present such an interesting exhibit that the rarer or more expensive kinds would soon follow.

In exchange for a number of duplicate specimens of birds, Dr. Dale, U.S.N.—collecting for the National Museum, Washington—sent us 66 kinds of fishes found in the Hongkong waters; to these have been added, mostly by purchase, some 40 or 50 more inhabiting the waters about Shanghai and the Chusan Archipelago. Duplicates of this small collection are being packed for transhipment to England to have them identified and classed, and thus form a nucleus which no doubt will soon develop into a valuable, and it is to be hoped, comprehensive collection of the fishes inhabiting the waters of China,—a section of ichthyology presenting a most interesting field of research, as it has been hitherto but little studied.

As making a collection of fishes calls forth no special knowledge of taxidermy and requires but little labour beyond gathering the specimens, small tanks are being constructed to be filled with suitable preserving liquid and supplied to persons at the coast and riverine ports with the view of obtaining specimens of the fishes peculiar to such places.

A list of the articles in the Museum has been made, and will be sent in for publication as soon as the scientific names of the fishes and other specimens sent home for identification arrive.

A communication from Dr. Guppy, R.N., adds the following corrections and additions to his valuable contributions of geological specimens as given in the Curator's report of last year.

D. C. JANSEN.

ALTERATIONS IN THE NAMES OF SPECIMENS OF ROCKS.

527 525	Fine-grained decomposing granite, from Amoy.
898 897	Probably "Quartzite" rather than "felsite," from Namoa Island.
876	Black "chert" (not hornblendic rock), from Kiukiang.
855	"Mica schist" rather than "talcose schist," from ditto.
860	Black "chert" (not hornblendic slate), from ditto.
816 820 821 824 825	Of these specimens (from a range of hills on the bank of the Yung river, below Ningpo) the porphyritic may be termed "felstone porphyry," and the non-porphyritic merely "felstone."
796 798	"Greisen," highly micaceous, from Mackan Island, Corean Archipelago.
770 775	More correctly mica schist (quartz and mica), from Chefoo.
777 781	Better named "Quartz schist," from Chefoo.
767 746	"Greisen" (a granular crystaline mixture of mica and quartz), from Chefoo; though as this rock is associated with typical mica schist the name "compact mica schist" can be hardly a misnomer.
445 446	"Felsites," not quartzites, from Tien-dong, near Ningpo.
407 413 416	"Porphyrite," from the Snowy Valley, near Ningpo. (Hornblendic rock is too general a term.

LIST OF CONTRIBUTIONS RECEIVED AT THE SHANGHAI MUSEUM DURING THE YEAR 1881.

DATE.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	SEX.	WHERE OBTAINED.	NAME OF CONTRIBUTOR.	REMARKS.
	Lava and Scoria			Mt. Vesuvius	H. E. F. de Luca.	
	Fur-Seal			Straits of Tsugor	Capt. G.C. Anderson.	
	Bow and Arrow			Ainos of Japan	do.	
	Grebe	Colymbus cristatus	m.	Wenchow	J. Compton.	to U.S. National Museum
	Coot	Fulica atra	f.	do.	do.	do.
	Oyster Catcher	Hæmatopus ostralegus	"	Swatow	Capt. W. N. Deville.	do.
	Hermaphrodite Pheasant			Bingwoo	F. Grose.	do.
	Death's-head Moth	Acherontia Atropos (Westwood)		Hongkong	Alex. Smith.	
	Black-crested Monkey	Presbytes melalophos (Wood)		Singapore	Mrs. Van der Tak.	
	1 Snake			On board s.s. "Pe-chili"	C. Buchanan.	
	1 Peregrine Falcon	Falco peregrinus		Ningpo	H. B. Meyer.	
	1 Siberian Marmot	Arctomys?		Behring St.	Commander A. De Livron.	H. I. R. M. s. "Strelock."
	1 Hoopoe	Upupa epops		Ningpo	E. Wadman.	
	1 Darwin's Pheasant	Phasianus Darwinii	m.	do.	A. Duncan.	
	1 Crow Pheasant	Centropus rufipennis	f.	do.	F. Kleinwächter.	
	2 Red-billed blue Magpies	Arocissa occipitalis	m.	do.	do.	
	2 do. do.	do. do.	m. f.	Shanghai	Bought.	
	1 Zibet	Viverra Zibetha		Foochow	C. C. Stuhlmann.	

DATE.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	SEX.	WHERE OBTAINED.	NAME OF CONTRIBUTOR.	REMARKS.
	1 Fox	- - - -	-	Shanghai	J. Howell.	
	1 Great Grey Shrike	Lanius excubitor	m.	do.	G. R. Corner.	
	1 Short-eared Owl	Otus brachyotus	f.	Pootung	C. Donaldson, Jr.	
	1 Velvet Scoter	Oidemia fusca	m.	Shanghai	J. Roustan.	
	1 Sarus Crane	Grus Antigone	f.	Tientsin	Wm. Gubbins.	
	1 Octopus	- - - -	-	Shaweishan	Capt. N. P. Andersen.	
	2 Velvet Scoter	Oidemia fusca	m.	Shanghai	O. Roberts.	
	1 Crane	Grus Antigone	„	do.	do.	
	1 Brown Vulture	Vultur monachus	f.	do.	Purchased.	
	1 Section of Tree	- - - -	-	- - - -	F. A. Groom.	
	1 Specimen, Stone	Conglomerate	-	- - - -	do.	
	66 Specimens of Fishes	- - - -	-	Hongkong	Dr. Dale, U.S.N.	
	40 do.	- - - -	-	Shanghai	Purchased.	
	1 Grey Woodpecker	Picus mandarinus	-	Ningpo	E. Stevens.	
	1 Soemmering Pheasant	Phasianus Soemmeringii	m.	Japan	Capt. G. C. Anderson.	
	1 Japan Pheasant	Phasianus versicolor	„	do.	do.	
	1 Mandarin Duck	Aix galericulata (Linn.)	„	do.	do.	
	36 Specimens of Malacca Birds	- - - -	-	- - - -	Capt. Schulze.	
	1 Eagle Owl	Bubo maximus	-	- - - -	Purchased.	
	2 Pairs Shrikes	Lanius	-	Shanghai	Presented.	
	2 Grey Starlings	Sturnus cineraceus	m.	Soochow	do.	
	1 Love Bird	- - - -	-	Canton	do.	
	2 Sinews	Mergus albellus	f.	Chinkiang	do.	
	1 Pair Chinese Mynalis	Acridotheres cristatellus	-	Shanghai	do.	
	3 Mountain Sparrows	Passer montanus	-	Kin Tan Hsien	do.	

DATE.	CONVENTIONAL NAME.	SCIENTIFIC NAME.	SEX.	WHERE OBTAINED.	NAME OF CONTRIBUTOR.	REMARKS.
	1 Hen Harrier	Circus cyaneus (Yarrell)	m.	Soochow fu	Presented.	
	1 Grey Woodpecker	Gecinus guerini	,,	Nee Shing	do.	
	2 Black-faced Laughing Thrushes (Malherbe)	- - - -	,,	- - - -	do.	
	2 Masked Jay Thrushes	Garrulax perspicillatus	-	Soochow	do.	
	1 Sparrow Hawk	Accipiter Nisus (Pallas)	f.	Shanghai	do.	
	2 Azure-winged Magpies	Cyanopolius cyanus	,,	do.	do.	
	1 Common Ring Dove	Columba palumbus (Linn.)	-	do.	do.	
	3 Chinese Bulbuls	Ixos sinensis	-	do.	do.	
	1 Oyster Catcher	Hæmatopus ostralegus	m.	do.	do.	
	2 Beach Worms	Nereids	-	North Bank	R. Knott.	

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Librarian's Report.

If the welfare of a Public Library were alone dependent upon the number of volumes annually added to its shelves, it might safely be said that the year 1881 has been one of the most prosperous in the history of our Library. During the year no less than 363 volumes have been entered in the Register of Accessions, not including Chinese works and publications on Natural History, a Catalogue of which is in preparation.

As the purchasing power of the Library is necessarily limited, it has been the chief aim of the Librarian to extend the relations of exchange with kindred Societies and Public Departments, and he is glad to announce that his applications in this direction have been very liberally responded to. The appended list shows the names of 66 Societies, Public Institutions, etc. which now regularly forward their publications to the Library, and a number of other Societies have since been addressed with a view to obtaining their transactions.

The Library is especially indebted for valuable support to the Superintendent of the Geological Survey of India, to the Director of the Imperial Botanical Garden at St. Petersburg, and to the Imperial Academy of Sciences at Vienna, the number of volumes presented by these three Institutions alone amounting to 162. Among the more important accessions may also be mentioned a complete set of the Journal of the Bombay Asiatic Society, the numerous publications of the Bataviaasch Genootschap van Kunsten en Wetenschappen, and the Bulletin and Memoirs of the Zi-ka-wei Observatory.

On the other hand, it is a matter of regret that the Library receives but scanty support from authors and private individuals in the East and elsewhere. Although our list of members includes not a few whose names are familiar to readers of Trübner's Literary Record, their publications will in most cases be looked for in vain on the shelves of the only special Library at Shanghai. Of individual contributors Dr. Legge, M. C. Imbault-Huart, and Mr. K. I. Streich, who presented a Chinese *mappemonde*, published in 1674 by Father Verbiest, deserve especial thanks for their donations.

By kind permission of the Shanghai Library arrangements have been made with the London Agent of that Institution, the latter undertaking to forward all publications addressed to the Society with the monthly parcels sent out to the Shanghai Library. The various transactions of Learned Societies are thus received with as little delay as possible, an arrangement which cannot fail to enhance the value of the Library as a repository of periodical scientific literature.

The number of readers has slightly increased since the circulation of the books has been placed under the efficient control of the Committee of the Shanghai Library, but it can hardly be said that the capabilities of the Library are utilised in proportion to its development. It is true that the collection will be found deficient in works of light literature, but considering the number of residents who are led by profession, if not by predilection, to take a more than cursory interest in the land they live in, it seems strange that no greater demands are made upon the splendid resources of the Library.

In conclusion I have to thank the Librarians of the Shanghai Library, Mr. and Mrs. Gale, for the able assistance they have given me throughout the year.

Shanghai, March, 1882.

M. SLEVOGT,
Hon. Librarian.

List of Societies, Public Institutions, etc. exchanging Publications with the Society.

ASIA.

Batavia. Bataviaasch Genootschap van Kunsten en Wetenschappen.
Bombay. Bombay Branch of the Royal Asiatic Society.
Calcutta. Agricultural and Horticultural Society of India.
„ Asiatic Society of Bengal.
„ Geological Survey of India.
Colombo. Ceylon Branch of the Royal Asiatic Society.
Hongkong. China Review.
Shanghai. Statistical Department, Imperial Maritime Customs.
„ Observatoire Magnétique et Météorologique de Zi-Ka-Wei.
„ Chinese Recorder and Missionary Journal.
Singapore. Straits Branch of the Royal Asiatic Society.
Yokohama. Asiatic Society of Japan.
„ Deutsche Gesellschaft für Natur- und Völkerkunde Ostasiens.

EUROPE.

Great Britain and Ireland.

Dublin. Royal Dublin Society.
Edinburgh. Royal Society.
London. Academy.
„ Anthropological Institute of Great Britain and Ireland.
„ Geological Society.
„ London and China Express.
„ Royal Asiatic Society of Great Britain and Ireland.
„ Royal Geographical Society.
„ Royal Society.
„ Society of Biblical Archaeology.
„ Statistical Society.
„ Trübner's American, European, and Oriental Record.
„ Zoological Society.

Germany and Austria.

Berlin. K. Preussische Akademie der Wissenschaften.
„ Gesellschaft für Erdkunde.
Dresden. Verein für Erdkunde.
Gotha. Justus Perthes' Geographische Anstalt.
Halle. Verein für Erdkunde.
Hamburg. Geographische Gesellschaft.
Königsberg. K. Physikalisch-Œkonomische Gesellschaft.

Leipzig. Deutsche Morgenländische Gesellschaft.
„ Magazin für die Literatur des In- und Auslandes.
Munich. K. Bayerische Akademie der Wissenschaften.
Vienna. Deutsche Rundschau für Geographie und Statistik.
„ K. Akademie der Wissenschaften.
„ K. K. Geographische Gesellschaft.
„ K. K. Geologische Reichsanstalt.
„ K. K. Zoologisch-Botanische Gesellschaft.
„ Orientalisches Museum.

France.

Lyons. Musée Guimet.
Paris. Revue Critique d'Histoire et de Littérature.
„ Société Académique Indo-Chinoise.
„ Société Asiatique.
„ Société d'Acclimatation.
„ Société de Géographie.
„ Société des Études Japonaises, Chinoises, Tartares et Indo-Chinoises.

Italy.

Florence. R. Istituto di Studi Superiori (Accademia Orientale).
Rome. R. Accademia dei Lincei.
Turin. Cosmos.

Netherlands.

S' Gravenhage. K. Instituut voor de Taal-, Land- en Volkenkunde van Nederlandsch Indië.

Russia.

Moscow. Société Impériale des Naturalistes.
St. Petersburg. Imperial Botanical Garden.
„ Imperatorskoye Rousskoye Gheographitcheskoye Obtchestvo.

AMERICA.

Cambridge. Museum of Comparative Zoölogy at Harvard College.
Mexico. Ministerio de Fomento.
New Haven. American Oriental Society.
New York. American Geographical Society.
Philadelphia. American Philosophical Society.
Salem. Essex Institute.
Washington. Smithsonian Institution.
„ United States Coast Survey.
„ United States Department of Agriculture.
„ United States Geogr. Survey W. of the 100th Meridian.

LIST OF WORKS ADDED TO THE LIBRARY OF THE NORTH-CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY DURING THE YEAR 1881.

I. Transactions of Learned Societies and Periodical Publications.

839.—STATISTICAL SOCIETY (LONDON).
Journal, 8vo. Vol. XLII., 1879.

840.—ROYAL GEOGRAPHICAL SOCIETY (LONDON).
Proceedings, 8vo. Vol. XXI., 1876-77.

p. 27. FORSYTH, SIR T. D.—On the Buried Cities in the Shifting Sands of the Great Desert of Gobi.
p. 258. ALLEN, HERBERT J.—Notes of a Journey through Formosa from Tamsui to Taiwanfu.
p. 266. BULLOCK, T. L.—Trip into the Interior of Formosa.
p. 325. TROTTER, H.—The Pundit's Journey from Leh to Lhása and Return to India viâ Assam.
p. 580. SMITH, F. P.—The Translation and Transliteration of Chinese Geographical Names.
p. 590. COTTAM, H.—Overland Route to China, viâ Assam, Tenga Pani River, Khamti, and Singphoo Country, across the Irrawaddi River into Yunan.

Proceedings, 8vo. New Series, Vol I., 1879.

p. 444. Explorations in Western Tibet, by the Trans-Himalayan Parties of the Indian Trigonometrical Survey.
p. 489. MCCARTHY, J.—Across China from Chin-Kiang to Bhamo, 1877.
p. 701. MORGAN, E. DELMAR—Pévtsof's Expedition in North-Western Mongolia.

845A.—THE LONDON AND CHINA EXPRESS.
Vol. XX.—September to December, 1878.
„ XXI.—January to June, 1879.

846.—SOCIÉTÉ DE GÉOGRAPHIE (PARIS).
Bulletin, 8vo. VI. Series, Vol. XIX., 1880.

p. 5. DUTREUIL DE RHINS—Résumé des travaux géographiques sur l'Indo-Chine orientale.
p. 97, 302. ROMANET DU CAILLAUD, F.—Notice sur le Tong-King.
p. 331. DUTREUIL DE RHINS—Notes de géographie historique sur le Fleuve Rouge.
p. 445. HARMAND—Note sur les inscriptions des monuments de l'ancien Cambodge.

Bulletin, 8vo. VI. Series, Vol. XX., 1880.

850A.—REVUE CRITIQUE D'HISTOIRE ET DE LITTÉRATURE.
Nouvelle Série.—Tome XI., 1881. Paris: Leroux, 8vo.

851.—DEUTSCHE MORGENLÄNDISCHE GESELLSCHAFT (LEIPZIG).
Zeitschrift, 8vo. Vol. XXXIII., 1879.
p. 502. STRAUSS und TORNEY—Bezeichnung der Farben Blau und Grün im chinesischen Alterthum.
p. 672. HIMLY—Das japanische Schachspiel.

852.—VEREIN FÜR ERDKUNDE ZU DRESDEN.
Jahresberichte, 8vo. Vols. XVI-XVII., 1878-80.

870.—K. PREUSSISCHE AKADEMIE DER WISSENSCHAFTEN ZU BERLIN.
Monatsberichte, 8vo. 1874.
do. do. 1880.
p. 23. PETERS, W.—Mittheilung über die von Hrn. Dr. F. Hilgendorf in Japan gesammelten Chiropteren.
p. 166. OPPOLZER, TH. VON—Ueber die Sonnenfinsterniss des Schuking.
p. 452. SCHOTT—Beiträge zur chinesischen Bücherkunde.
p. 921. PETERS, W.—Ueber die von der chinesischen Regierung zu der internationalen Fischerei-Ausstellung gesandte Fischsammlung aus Ningpo.
p. 1029. PETERS, W.—Ueber eine Sammlung von Fischen, welche Hr. Dr. Gerlach in Hongkong gesandt hat.

873.—ORIENTALISCHES MUSEUM (VIENNA).
Oesterreichische Monatsschrift für den Orient, 4to.
Vol. V., 1879.
p. 113. HAAS, JOSEPH—Die Kuldja Frage.
p. 114. SCHWEIGER-LERCHENFELD—Tsin und Ta-Tsin. Einiges über die älteren Handelsbestrebungen der Chinesen.
p. 189. RATZEL, F.—Korea, die Liukiu-Inseln und die zwei ostasiatischen Grossmächte.

Vol. VI., 1880.
p. 17. SIEBOLD, H. VON—Die Bereitung des japanischen Papiers.

p. 50. Schlagintweit-Sakünlünski, H. von—Aus den Gebieten Ost-Turkistáns.
p. 87, 102. Rudel, Alwin—Die Schriftmittel und Schreiber des Orients alter und neuer Zeit.
p. 134. Hellwald, Fr. von—Die Ruinenplätze Cambodschas.
p. 189. Ratzel, Dr. F.—Die Chinesen in Nordamerika seit 1875.
p. 199. Klöden, Prof. G. A. von—Ueber Tibet.

879.—R. Accademia dei Lincei (Rome).
Atti, Serie III., Transunti, 4to. Vol. IV., 1879-80.

879A.—Justus Perthes' Geographische Anstalt (Gotha).
Dr. A. Petermann's Mittheilungen, 4to. Vol. XXVI., 1880.
p. 14. Behm—Der grosse tibetanische Fluss in seinem Laufe zum Brahmaputra.
p. 205. Regel—Turfan.
p. 366. Die japanischen Vertragshäfen in Korea.
p. 422. Oberstlieutenant M. Pjewzow's Expedition nach Kukuchoto.
p. 447. Klöden—Die Liu-Kiu Inseln.

Ergänzungsband XIV., 1880-81.
Contents :—
No. 61. Rivoli : die Serra da Estrella.
" 63. Mohn : die Norwegische Nordmeer-Expedition.
" 64. Fischer : die Dattelpalme.
" 65. Berlepsch : die Gotthard-Bahn.
No. 62 see 70 A.

879B.—Frankfurter Verein für Geographie und Statistik.
Jahresbericht, 8vo. Vols. XXXVII-XLV., 1872-80.
(1872-74) *p.* 87. Aus Briefen Dr. J. Rein's an seine Frau.
p. 114. Brief Dr. J. Rein's an den Verein für Geographie und Statistik.
(1875-78) *p.* 67. Rein—Reis und Mais, eine pflanzengeographische und culturgeschichtliche Studie.

879C.—Verein für Erdkunde zu Metz.
Jahresbericht, 8vo. Vols. I-II., 1878-79.
Do. Vol. III., 1880.
p. 97. Lörcher—Die Kantonprovinz und die Geomantie als chinesische Weltanschauung.

879D.—Deutsche Rundschau für Geographie und Statistik.
Herausgegeben von Prof. Dr. Carl Arendts.
Vol. III., 1880-81. Wien: Hartleben, 8vo.
p. 150, 218, 258. Ganzenmüller—Der Central-Zug des nordwestlichen Himalaya.
p. 412. Schütt—Eine Winterpartie in die japanischen Berge.

880.—AMERICAN ORIENTAL SOCIETY (NEW HAVEN).

Journal, 8vo. Vol. VIII., 1866.

p. 1. WHITNEY—On the views of Biot and Weber respecting the relations of the Hindu and Chinese systems of Asterisms.

p. 382. WHITNEY—Reply to Weber on the Asterisms.

Journal, 8vo. Vol. X., 1880.
Do. Vol. XII., 1881.

889.—ESSEX INSTITUTE (SALEM).

Bulletin, 8vo. Vol. XII., 1880.

891.—BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY.

Journal, 8vo. Vols. I-XIV., 1841-80.

Vol. II., *p.* 415. Desiderata relative to Thibet and Central Asia.

Vol. V., *p.* 408. STEVENSON—Buddhist Antiquities in China.

Vol. XI., *p.* 115. GERSON DA CUNHA—The Tooth-relic of Ceylon.

Do. *p.* 311. REHATSEK—The Arab Astronomers, and their Instruments.

Vol. XIII., *p.* 152. REHATSEK—Christianity among the Mongols till their expulsion from China in 1368.

892.—BATAVIAASCH GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN.

1.—Verhandelingen.

Vols. XVIII. (1842); XX. (1845). 8vo.
Vols. XXII-XXXVIII. (1849-75); XL. (1879). 4to.

Vol. XXV. (VII). BLEEKER—Nalezingen op de Ichthyologie van Japan.

Vol. XXVI. (IV). BLEEKER—Ichthyologie van Japan.

Vol. XXX. (III). GRIJS—Geregtelijke Geneeskunde, uit het Chineesch vertaald.

Vol. XXXII. SCHLEGEL—Hoa Tsien Ki. Geschiedenis van het Gebloemde Briefpapier.

SCHLEGEL—Thian Ti Hwui. The Hung-League or Heaven-Earth League. A Secret Society with the Chinese in China and India.

SCHLEGEL—De Prostitutie in China.

Vol. XXXVI. SCHLEGEL—Sinico-Aryaca ou recherches sur les racines primitives dans les langues Chinoises et Aryennes.

2.—Tijdschrift voor Indische Taal-, Land- en Volkenkunde. 8vo.

Vols. III-XXIV., 1855-77.
Vol. XXVI., 1881.

Vol. III. (XXIV). Munten der Chinezen in Sambas.

Vol. V. *p.* 487. GRIJS—Munten met chineesche stempels uit Cheribon.

Vol. VI. *p.* 97. LANGENHOFF—De Thay-pĭk-koeng d. Chinezen.

Vol. VII. *p.* 478. LANGENHOFF—Het chinesche feest Tshit-nyet-pan en het genootschap Thien-thy-foei.

Vol. IX. *p.* 67. HAGEMAN—De Tijdberekening bij de Chinezen.

Vol. XIV. *p.* 88. FRANCKEN—Godsdienst en bijgeloof der Chinezen.

—*p.* 569. SCHLEGEL—Chineesche mouches.

Vol. XX. *p.* 1 SCHAALJE—Chineesche geheime genootschappen.

—*p.* 9 SCHLEGEL—Betrekkingen der Chinezen met Java voor de komst der Europeanen aldaar.

—*p.* 88. SCHAALJE—De kleine voeten der vrouwen in China.

Vol. XXVI. *p.* 418. FABER—Drie Chineesche Kaartspelen.

3.—Notulen van de Algemeene en Bestuursvergaderingen. 8vo.

Vols. I-XVI., 1863-78.
Vol. XVIII., 1880.

Catalogus der Bibliotheek........., door J. A. VAN DER CHIJS. 1864, 8vo.

Eerste Vervolg-Catalogus der Bibliotheek en Catalogus der Maleische, Javaansche en Kawi Handschriften. 1872, 8vo.

Tweede Vervolg-Catalogus der Bibliotheek. 1877, 8vo.

Alphabetische Lijst van Land-, Zee-.........en andere Kaarten. 1873, 8vo.

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